Beyond Utility: An inductive investigation into non-utility factors influencing consumer adoption and use of ICT

AGIUS, BERNARD

BEYOND UTILITY

An inductive investigation into non-utility factors influencing consumer adoption and use of ICT

BERNARD AGIUS

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Abstract

This study explores the adoption and use of Information and Communications Technologies (ICTs) in a context marked by ubiquitous connectivity and intense social interaction. Research in the field has predominantly explored the topic within closed and private contexts, such as work and education environments. Resulting theories tend to lose predictive strength when transferred to open and social contexts.

Specifically, theories often assume that behaviour is shaped exclusively by the utility derived from technological functions – an occurrence more common in closed and private settings. Other influencing factors, whilst acknowledged, tend to be sidelined or treated as exceptions. Further complexities arise as theorists misread and mistreat user perceptions and intentions.

The study combines an inductive strategy with a Skinnerian *radical behaviourist* philosophical worldview. Individual accounts and group discussion about online social networking and smartphone ownership were captured in a natural social setting. A total of 35 technology users from Malta aged between 18 and 40 years participated in face-to-face interviews and focus group discussions. In contrast to other studies, verbal accounts and group interaction were treated and analysed as social behaviour and not as cognitive decision processes.

Findings show that a more holistic understanding emerges if the social and internal dimensions are considered alongside environmental consequences. Results indicate that beyond utilitarian benefits, users also seek pleasure and social status whilst averting risk and minimising cost and disruption.

The study shows that consumer ICTs are different from other technologies, such as cars and refrigerators, since these are tools specifically designed for application within verbal behaviour. ICTs can be applied as tools to communicate information, share past experiences, provide feedback to others, and confer social status on others. ICT applications elicit feedback from listeners and observers rather than cause measurable changes in the environment.

The study builds on this insight by proposing a conceptual framework as an interpretative tool for practitioners and as a theoretic proposition for future inquiry.

Keywords: Consumer Behaviour Analysis, Consumer ICT, Diffusion of Innovations, Intentional Behaviourism, Technology Acceptance Model

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To my family

1 Introduction

> *"The exchange of consent being given by the electric flash, they were thus married by telegraph."(Standage, 1999, p. 45)*

In his novel entitled The Victorian Internet, Standage (1999) provides an account of how the telegraph diffused in the nineteenth century. The book tells the story of the technology as an innovation, how it gained momentum and diffused in societies of then, and how its advent brought about radical shifts in the lives of many. The similarity between how the telegraph diffused two centuries ago and the effects of the Internet on the past two decades is striking.

The novel narrates the story of the many individuals behind technology development and diffusion starting from those who developed it to those who operated and used it until its final demise. The story is not just about technological grandeur and engineering feats. Instead it is about individual choices that have been shaped by curiosity, pride, love, envy, greed, boredom and excitement. The telegraph of the Victorian era, as described by Standage, is a vivid example of how a communications technology can diffuse in a social system through many individual behaviours shaped by mundane yet unique situations and aspirations.

The following study explores consumer adoption and use of Information Communications Technologies (ICTs) as applied in diverse mundane contexts ranging from work, education, social interaction and entertainment contexts. It is concerned with highly accessible and sophisticated technology, ubiquitous internet connectivity and the myriad of applications for which ICTs are used.

Technology adoption and use is not a new topic within social science research. The late Everett Rogers, in his fifth and last edition of his seminal publication, the Diffusion of Innovations (2003), had identified over 5,200 studies that investigated the diffusion of novel ideas, mostly in the form of technological innovations. Amongst influential theories describing the phenomena there is the Bass Diffusion Model (Bass, 1969), the Technology Acceptance Model (Davis, 1989) and the Adaption-Innovation Inventory (Kirton, 1984) to mention just a few.

Despite such vast body of research, theory still appears to struggle in providing an exhaustive understanding for complex situations such as those captured in Standage's (1999) novel. Curiosity, pride, love, envy, greed, boredom and excitement repeatedly emerge in the novel, and yet, their inclusion and explanation in theory remains difficult, if not bypassed. Furthermore, in such complex situations as those recounted in Standage's novel, the consequences of use are often distinct and distant from the original utilitarian purposes for which the ICT was conceived and developed. This study seeks to shed light on the non-utilitarian factors and complexities that shape adoption and use by inductively exploring what consumers maximise beyond utility.

To achieve this objective, the study assumes an inductive strategy whilst also adopting a post-positivist worldview. Skinner's *radical behaviourism* (1976) is assumed as a philosophy of science to serve as a robust yet novel perspective to observe, give meaning and draw new inferences about the phenomena. The inductive strategy is intended to facilitate the emergence of comprehensive yet parsimonious understanding whilst also circumventing the biases present in current mainstream theory.

Therefore, the research question pursued in this study asks: What are the non-utilitarian factors that influence ICT adoption and use? How do such factors influence behaviour?

The research leads to the following outcomes:

- An inductive investigation into the non-utility factors that are observed to influence the behaviour of the target population;
- The proposition of a parsimonious framework that builds on data and current literature exposing potential relationships between non-utility factors and behaviour emission;
- The generation of new viewpoints and theoretic inferences serving to help practitioners in understanding complex consumer ICTs contexts and to guide future scholar research; and
- Tentative professional tools aimed at the marketer to benchmark the non-utilitarian attributes of an ICT product or service.

Beyond these outcomes, the study also seeks to extend the tenets of *radical behaviourism* and the Consumer Behavioural Analysis (CBA) programme to new

theoretic fronts and methods. The combination of such inductive strategy and method with the philosophical worldview of *radical behaviourism* is relatively novel and can be considered as a contribution in itself. Furthermore, the study aspires to serve as an opportunity to bring theoretic insight closer to practical application as theory is applied to new relevant contexts and by proposing inferences that are useful to practitioners.

1.1 Definitions

For the purposes of this study the term utility will refer to the degree of usefulness and advantage a specific ICT is perceived to provide to its user. ICTs are useful in communications situations where the technology is applied to enable or enhance a user's ability to interact or process information. This definition coincides with economic theory where the term refers to the satisfaction a user would experience by adopting and using the specific technology. Utilitarian factors, therefore, are directly related to the utilitarian function for which the technology has been conceived. Therefore, utilitarian factors increase the effective of the ICT as tool when applied to achieve a specific functional objective. Non-utility factors, on the other hand, will refer to elements that appear to influence behaviour, but which are not directly related to the functional purposes of the technology, and therefore, not typically perceived by the user as increasing utility.

As this study focuses on tool use, the term *consumption* will be avoided even though the core theory is borrowed from a consumer behaviour oriented theory (CBA). Instead, preference is given to terms encountered in diffusion literature, that is, *adoption* and *continued use*. *Adoption* refers to the engagement with a technology that also potentially entails the discontinuation of prior behaviour. *Continued use,* or simply *use,* refers to post-adoption habitual repeated application of the technology. Both behaviours are important for the purposes of this study.

For similar reasons, the individual emitter of adoption or continued use behaviour will be referred to as the *user*. The term *consumer* is utilised in the title of the study to emphasize that the study is confined to human end users and organisational behaviour falls outside its scope. A group of users, including their social relationships, will be referred to as a *social system* (Rogers, 2003). ICTs diffuse in social systems that

constitute of social structures, norms and shared histories and that engage in joint problem solving to accomplish common goals.

The terms *tools* and *technology* are briefly introduced to contextualise a definition of ICT and its relevance within user behaviour. Tool use behaviour is not exclusive to humans but only humans seem to possess the cognitive capacity to develop and manipulate such sophisticated tools in complex situations especially when considering the capacity for language. *Very broadly, tools can be defined as objects that "must not be part of the animal itself, nor be attached to the environment; and be manipulated to achieve some beneficial outcome"*(Hansell and Ruxton, 2008, p. 73). On the other hand, *T*echnology is defined as a "design for instrumental action" that reduces the uncertainty in the cause-effect relationships involved in achieving a desired outcome (Rogers, 2003).

A definition of ICT is proposed particularly to create a distinction from other sophisticated technologies. In scholar and practice literature, ICT is used as an umbrella term to describe communication devices and their applications. For the purpose of this study ICT (Information and Communications Technology) will refer to those technologies that are applied for communications purposes, that is, user interaction and acquisition of information. Cars, intelligent lighting, and robotic vacuum cleaners, despite their sophistication, for the purposes of this study will not be considered as ICTs. This distinction is important as whilst some technologies will be applied in behavioural contexts which directly change the environment (such as transportation, lighting and cleanliness), communications or gaining new information (such as sharing news or giving feedback), will cause no direct changes. As discussed in-depth at a later stage, a radical behaviourist view will offer an opportunity to expose and investigate this distinction.

Since ICTs, like other technologies, diffuse in social contexts, it is also imperative to introduce the notion of *innovation*. Rogers defines innovation (2003, p. 12) as an idea, practice or an object that is perceived as new. This term is not exclusive to technology as it can refer to an idea, a design or an application of technology, which in the context of this study may refer to both novel technological advancement, and new ways of technology application. Innovation diffusion is defined as:

> *"the process of the market penetration of new products and services, which is driven by social influences. Such influences include all of the interdependencies among consumers that affect various market players with or without their explicit knowledge" (Peres et al., 2010, p. 92).*

1.2 Structure of thesis

The thesis is structured in six chapters. Chapter 1 introduces the topic, the research aims and the objectives. The literature review is presented in two parts – Chapter 2 and 3. The first part introduces parsimonious theories that have been used to identify and explain the factors that influence user decisions and behaviour and how these factors influence diffusion. The second part of the literature introduces *radical behaviourism*, the Consumer Behaviour Analysis Programme (CBA) and *intentional behaviourism*. Mental states and the intentional dimension of inquiry are then discussed exposing a potential alternate perspective to the phenomena.

Chapter 4 introduces the methodology. The first part outlines and justifies the choice of worldview pursued and how this fits within the research question and objectives sought. The second part of the chapter details the method used. Results, as emergent from data, are presented in Chapter 5 highlighting the key emergent categorisations, and the relationships exposed. The chapter proceeds with the proposal of a conceptual framework that merges insight generated from data and the literature. Theoretic inferences are proposed and discussed putting forward avenues for future research and practical insight for business practitioners. The study comes to an end with Chapter 6 where the core findings, inferences, impact and main limitations are summed up.

2 Approaches to explaining adoption, use and diffusion

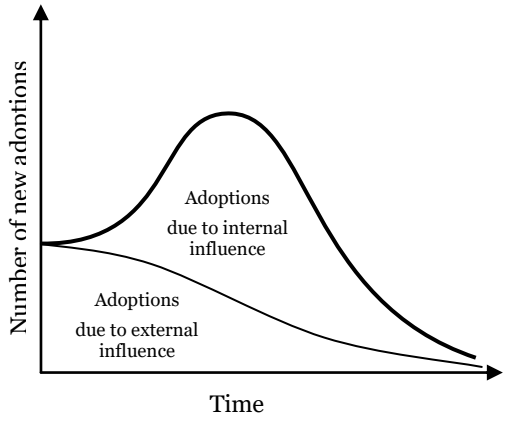
This chapter presents a literature review of key theories in the domain of ICT diffusion. The first part contrasts aggregate theorises that describe diffusion within social systems. Focus is placed on how the literature differentiates between different groups of adopters and its interaction with novel technological introductions and generations. The second part focuses on the individual user and theories that predict adoption and use.

2.1 Diffusion patterns: Aggregate effects of individual behaviours

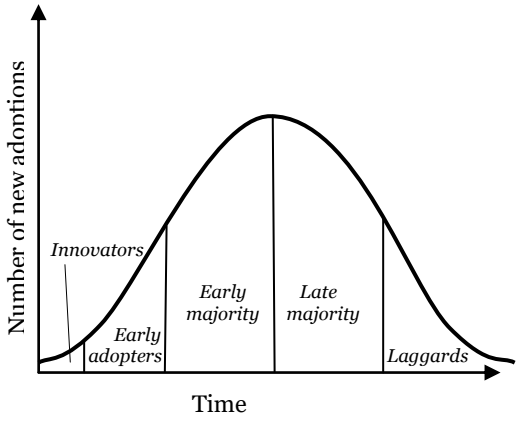
Diffusion literature is vast, touching on different contexts such as products, technological trends and information, while also factoring for time, culture and demographic diversity. Despite this diversity in the literature, common patterns emerge. There is widespread consensus that diffusion follows a bell-shaped pattern and that distinctions can be made in the traits of different adopter groups. Three seminal diffusion theories are included in this review for their widespread use in literature and the direct relevance to the current study. These are the *Diffusion of Innovations* (DoI) (Rogers, 2003), *the Bass Model* (Bass, 1969) and the *Sales Saddle Effect* as a manifestation of dual markets as proposed by Goldenberg et al. (2002). The three models adopt slightly different perspectives towards innovation. Rogers views innovations as anything from mere innovative ideas to complex technologies. The Bass model is specifically focused on the diffusion of products which are by default innovations and technologies, and the Goldenberg model deals specifically with innovative technologies.

The DoI, as proposed by Rogers, assumes that diffusion follows an evenly normal distribution curve (Rogers, 2003). The model identifies five adopter categories by partitioning the curve into innovators (2.5%), the early adopters (13.5%), early majority (34%), late majority (34%) and the laggards (16%). Rogers argues that different adopters fit on a continuum of diverse adopters. The segmentation between the different categories was based on statistical standard deviation to offer a simple means of demarcation between the different groups of adopters over time.

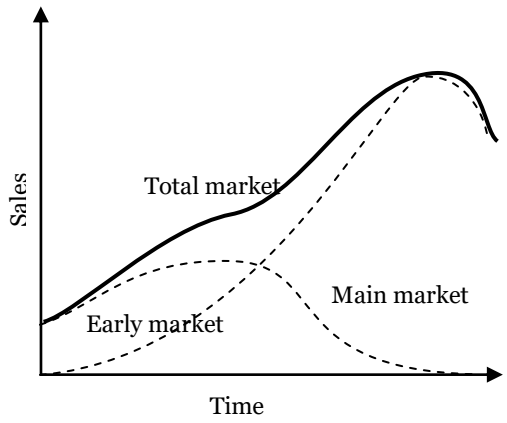
A. Adoptions due to external and internal influences in the Bass Model



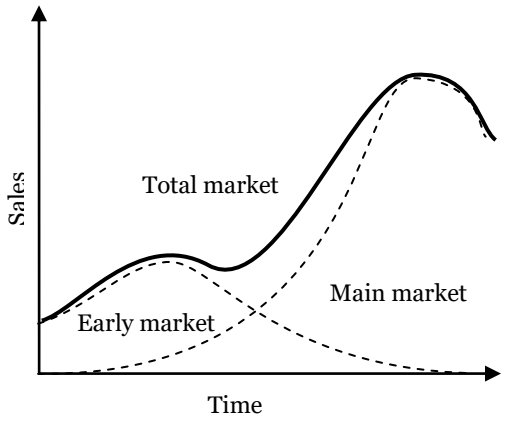
B. DoI: Adopter categories on the basis of Innovativeness



C. The dual-market non-saddle case



D. The dual-market saddle case



Sources

A. Mahajan, Muller, & Frank M. Bass (1990a, p. 4)
B. Rogers (2003, p. 281)
C. Goldenberg et al.(Goldenberg et al., 2002, p. 5)
D. Goldenberg et al.(Goldenberg et al., 2002, p. 5)

Figure 2.1 - Diffusion patterns

In contrast, The Bass Model is based on empirical evidence that supports a demarcation between at least two types of adopters – the innovators and the imitators. The model originated as a marketing tool to forecast the diffusion of innovations. As proposed by Bass (Bass, 2004, 1986, 1969) the model focuses on two key types of communications that influence adopters namely: *mass media* and *word-of-mouth*.

The model posits that innovators are influenced primarily by *mass-media*, whilst the imitators by *word-of-mouth*. The theory was later revised to qualify that such distinction is the result of *adoptions due to external influence, mostly mass media,* and *adoptions* due to *internal influence* resulting from interaction between members of the social system. The Bass Model excludes the *innovator* category as in a product market where innovations emerge ready formed (Mahajan et al., 1990a, 1990b).

By contrasting the DoI and the Bass Model, two adopter categories may be found comparable. The adopters due to internal influence in the Bass Model can be compared to the aggregate of early adopters and early majority as proposed in the DoI. Similarly, the adopters due to external influence can be compared to the aggregate of late majority with laggards respectively (Mahajan et al., 1990b).

Furthermore, the Bass Model differs from the DoI on a number of fronts. Firstly, as outlined earlier, the Bass model explores adoptions and not adopters. This reflects into categories that do not feature sequentially throughout the diffusion curve, but are rather a representation of different intensities at different stages of the diffusion curve. Unlike in the DoI, the distinction between the different adopter categories is not arbitrary. Rather, the categorisation is based on how innovations are communicated – via media or word of mouth. Finally, in contrast to the DOI, the Bass Model proposes that the size of adopter categories is dependent on the type of product and the social system in which it diffuses (Mahajan et al., 1990b).

The distinction of two overlapping groups of adopter categories has been further developed to propose a dual-market diffusion pattern (Goldenberg et al., 2009, 2002; Muller and Yogev, 2006; Van den Bulte and Joshi, 2007). This model postulates that diffusion constitutes an early market, followed by a late market, and the diffusion curve observed can be best explained as the aggregation of both markets. This theory further proposes that delays between early and late markets can create a saddle in the curve caused by a periodic decline in adoptions (sales), but then followed by a recovery and a second peak. Goldenberg et al. (2002) located the saddle phenomenon in a third to a half of the data on consumer electronic diffusion cases they investigated.

Table 2.1 - Early and late adopter groups in theory

Theory	Diffusion of Innovations	Bass Model	Dual Market
Terminology used	*Early adopters* and *early majority*	*Adopters due to internal influence*	*Influentials*
	Late majority and *laggards*	*Adopters due to external influence*	*Imitators*
Literature	Rogers (Rogers, 2003)	Bass (1969; Mahajan et al., 1990a)	Goldenberg, Libai, & Muller (2002) Muller &Yogev(2006) Van den Bulte& Joshi,(2007)
Characteristics of early adopters versus late adopters	According to DoI Early adopters, when compared to later adopters: have higher levels of education/literacy; show higher social status; show higher social mobility; possess more resources; show greater empathy; show more rationality and intelligence; are less dogmatic and fatalistic; show favourable attitude towards change; show greater ability to deal with abstraction, uncertainty and risk have higher aspirations; show more social participation; are more socially interconnected; are more cosmopolite; are more in contact with change agents.	The Bass model generalises that : innovators adopt after being influenced by mass media; imitators adopt after being influenced by word-of-mouth (interpersonal)	Early market adopters induce an overall faster growth model – originating from strong external influence as well from as from strong internal communications between group members.

The theories examined so far suggest that the diffusion curve may be explained through two main adoption categories. Table 2.1 above highlights the three main diffusion models identified above and contrasts the respective adopter categories. For comparison purposes, the Rogers model is simplified into two main categories, the early adopters and early majority; and the late majority and laggards whilst innovators are excluded. Such grouping is sound considering that Rogers often clustered these categories in a similar manner and as part of a continuum.

The work of Moore (1999), *Crossing the Chasm*, proposes a discontinuity between the innovators and early adopters (the visionaries), and the early majority, late majority and the laggards (the pragmatists). This theory is commonly referred to in both academic and management literature but has been excluded from the above comparison. Its omission merits justification.

The theory by Moore would contradict the two main categorisations as proposed above primarily because of the argument that the chasm, the distinction, occurs within the early adoption stage of the DoI curve. Whilst the existence of a chasm resonates with the saddle effect theory (Goldenberg et al., 2002; Muller and Yogev, 2006; Van den Bulte and Joshi, 2007), such a sudden drop leading to a second increase, if any, is caused by the effect of a dual-market rather than a chasm. Whilst it is plausible that a difficult transition phase may exist in product lifecycle, the arguments put forward by both Bass and Goldenberg et al. are more robust. Rogers (2003, p. 282) further rejects the notion of a chasm as in his view innovation is a continuous variable with no sharp breaks between adjacent adopter categories. Therefore, the location of the chasm, although observable and measurable, should not be treated as the demarcation between adopter categories.

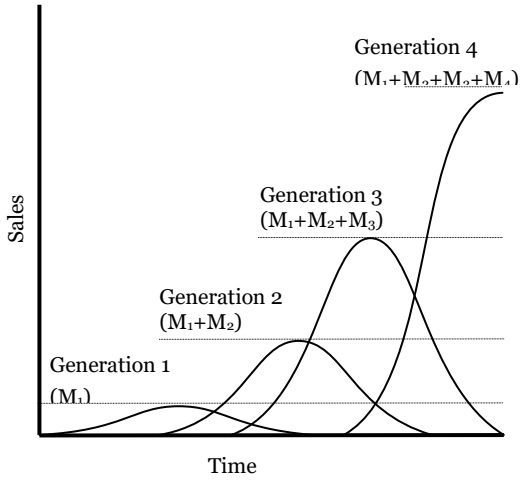
It is important to outline that common distinct traits have been recorded between early and later adopter groups, and a number of generalisations linked to affluence, demographics and culture to name a few have been proposed (see Rogers, 2003). However such generalisations must be understood with caution since these are typically based on relations that have been empirically investigated in isolation. ICTs are shaped by complex social, technological and cultural contexts that need to be factored within for a complete understanding to emerge. A study by Aral and Walker (2012) has shown that demographics and the social context, culture and make-up of social system, can influence adoption in a highly complex way that defies traditional

categorisations. Basing solely on rigid systematic diffusion models, as those proposed above, might prove elusive to the marketer or the product/service designer, especially in situations such as leapfrogging and the coexistence of multiple technologies generations; a common occurrence in the present day scenario (Muller, 2014).

2.1.1 Re-inventions and generations

The above section has presented diffusion as a bell-shaped curve that is typically formed by two main types of adopters, each showing different propensities and readiness levels. However innovations and technologies do not diffuse in isolation. Diffusion is typically part of wider and complex contexts effected by competition and marked by disruptions and re-inventions (Goldenberg and Oreg, 2007). Rogers (2003) defined re-invention as the process by which a technological innovation is re-invented (or re-purposed) by its adopter often consisting of generational enhancements and improvements to products or services. In the context where a product is re-invented and re-proposed in a market, as pursued in the Bass Model and the Dual Market Model, the user is seen taking a passive role of adopting or rejecting the enhancement or improvement.

Norton and Bass (1987) proposed a forecasting framework that factors in both diffusion and substitution. They proposed that markets flow from earlier generations to later generations, and each new generation expands the market (see Figure 2.2). The theory further proposed that the demand for an earlier generation does not peak immediately after the introduction of a later generation. Empirical support for this model was found for a number of innovations ranging from electronics to industrial goods (Bass, 2004; Muller, 2014; Norton and Bass, 1992). Research on innovation generations has looked into areas such as: the speed of diffusion and lifecycle of generations and its effect of subsequent market behaviours (Pae and Lehmann, 2003; Stremersch et al., 2009; Van den Bulte, 2000); *complementarity* and competition by related product categories (Kim et al., 2000); leapfrogging and switching adoptions (Jiang and Jain, 2012); and, the forward looking effect (Shi et al., 2014). Considering what induces users to shift to a newer version of a product, the literature (Kim and Srinivasan, 2009) suggests that users will do the shift if the expected utility of the new generation is greater than the utility of their current one.



Source: Norton & Bass (1992, p. 67)

Figure 2.2 - Typical growth and diffusion pattern

2.1.2 Social influence, network and intensity

The literature suggests that diffusion takes place within social systems and is therefore influenced by social make-up and context complexities (Cho et al., 2012; Costenbader and Valente, 2003; Dover et al., 2012; Goldenberg et al., 2009; Iyengar et al., 2010b). There is agreement in the literature that the seeding of diffusion can be attributed to *opinion leadership* and subsequent *social contagion*.

Rogers described opinion leadership as *"the degree to which an individual is able to influence other individuals' attitudes or overt behaviour in a desired way with relative frequency",* while opinion leaders are described as *"individuals who lead in influencing others' opinions"*(2003, p. 300) and who determine the rate of diffusion of an innovation. The relevance and influence of opinion leadership has been the focus of various studies exploring the traits of leaders and follows and the dynamics that cause contagion of behaviour (Aral and Walker, 2012; Iyengar et al., 2010a; Li et al., 2013). Following the Bass model, opinion leaders learn about new innovations through media, and thereafter will communicate the innovation to followers via word of mouth.

Word of mouth persistently emerges as a central element in the literature and is central to the present study. It is considered as a means for contagion and therefore of particular relevance to the marketing practices particularly at an age of ubiquitous connectivity. The impact of word of mouth at the aggregative level is complex. The

literature makes distinctions between positive and negative referrals, strong and weak social ties, and the type and complexity of information disseminated (Goldenberg et al., 2001). The literature has also explores how best to use opinion leaders to accelerate take-up (Libai et al., 2013), and the complex relationship between word of mouth and brand. A distinction is also made between online and offline word of mouth (Baker et al., 2015; Berger, 2014; Lovett et al., 2013).

Beyond seeding and contagion, the theory of *Network Externality* claims that certain goods and services *"become more valuable to the user as the number of users increases"* (Rogers, 2003, p. 350). ICTs such as social networks and smartphones are good cases for externalities. As more users adopt and use the technology, the communication opportunities become possible. Theory also proposes *critical mass* as the amount of take-up needed so that the externalities contribute to a faster rate of diffusion (Rogers, 2003). In complex scenarios, such as those of ICT products and services, utility increases indirectly with the number of users of another complimentary product increase (Peres et al., 2010).

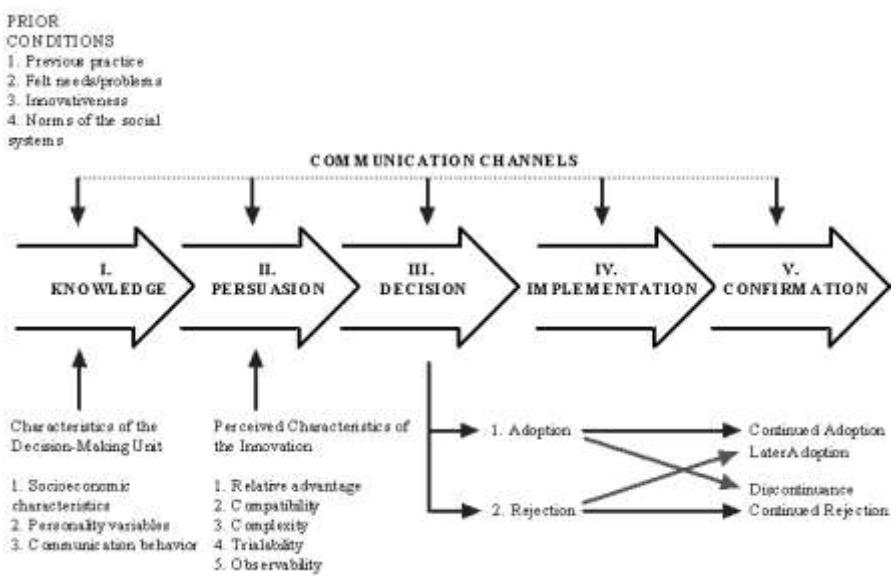
Beyond an increased utility derived from a bigger network of users, network externality is also subject to *social inference*, or *social signalling*. Users tend to follow the consumption behaviours of the group they aspire to form part of and a larger number of adopters leads to stronger social signalling (Van den Bulte and Joshi, 2007). Research shows that the speed of diffusion is faster in societies which are more sensitive to status (Van den Bulte and Stremersch, 2004) as members of social system appear more susceptibility to influence through social ties (Hu and Van den Bulte, 2014). However, social inference is not exclusively the outcome of word of mouth as it can also result from observations.

2.2 The user in perspective: factors influencing decisions and behaviours

The literature on the diffusion and adoption of ICT at the individual level is identified and discussed in this section with a particular focus on technology acceptance, adoption and use.

DoI describes diffusion as a "*process by which an innovation is communicated through certain channels over time among the members of a social system*" (Rogers,

2003, p. 5) where each member of the *social system* faces their own *innovation-decision*. The theory follows a five-step process (2003, p. 171) (see Figure 2.3) dealing with the uncertainty that is involved throughout the decision process. As outlined earlier, Rogers talks about general innovations, and therefore, his explanation is not confined to technological innovation. Basing on the results of aggregate studies administered over seven decades, he proposed a number of stages through which a potential adopter must go through in order to become aware of the innovation (knowledge), form perceptions and attitudes (persuasion), adopt (decision), and thereafter make a decision on whether to continue its usage or not (implement and confirmation).



Source: Rogers (2003, p. 171)

Figure 2.3 - Five stages of the adoption process

Roger's five-stage model presents adoption as a complex sequential process that could potentially result as different outcomes for different users. The model departs from the notion that adoption is two-stage, but suggests that it is a process where individuals might adopt at different stages even if they become aware of the innovation at the same time. Furthermore, the model accounts for subjective perceptions, *relative advantage* in particular, as a key determinant in the *persuasion* phase. This implies that differences between adopters are not merely the result of demographics, socio-economic status or gender amongst others, but consists of a *psychological involvement* resulting from individual aspirations, uncertainties, beliefs and history. Rogers further

stresses that a positive attitude formation does not guarantee adoption behaviour (2003). While producing relevant debate on the factors that influence individual adoptions, Roger's model has not yet been empirically constructed or tested.

2.2.1 Behavioural-intention models

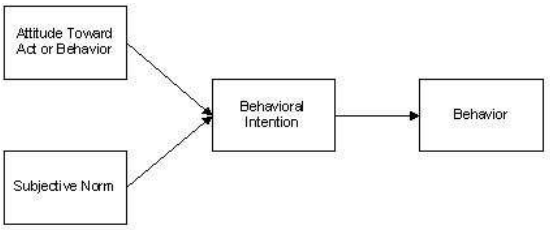
Attempts to capture and measure attitudes as a parsimonious means of predicting consumer behaviour may be located in behavioural-intention models such as The Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975) and the Theory of Planned Behaviour (TPB) (Ajzen, 1991). The Technology Acceptance Model (TAM) (Davis, 1989; Davis et al., 1989) is a derivate of TRA and has been used to explain and predict the acceptance of new technologies in organisational and personal situations (Venkatesh and Davis, 2000). In TAM, *behavioural intention* is predicted through *perceived usefulness* and *perceived ease of use*. *Perceived usefulness* refers to "*the degree to which a person believes that using a particular system would enhance his or her job performance*"(Davis, 1989, p. 320), whilst *perceived ease of use* refers to "*the degree to which a person believes that using a particular system would be free from effort*"(Davis, 1989, p. 320).

TAM has been applied in a large number of studies. In meta-analysis investigations, King and He (2006) identified 88 studies; Ma and Liu (2004) identified 26 studies; Schepers and Wetzels (2007) identified 51 studies whilst Yousafzai et al. (2007a, 2007b) analysed 145 studies. Its parsimonious properties and ease of application still make it widely applied in studies exploring the introduction of novel technology in work environments and beyond. However, TAM has also increasingly become subject to criticism (see Bagozzi, 2007; Goldsmith, 2012; Venkatesh et al., 2007) as interest in its review and development has declined substantially over the past years.

It must be acknowledged from the outset that TAM was devised to aid the introduction of new information systems in work environments – namely test job-relevant needs and quality improvement. Its predictive powers, therefore, diminish substantially when applied outside such contexts. Furthermore its constructs are not always able to fully describe the variety of user task environments or how well the technology meets user needs particularly in voluntary adoption contexts (Yousafzai et al., 2007a, 2007b). TAM, in its original form, does not account for social or cultural interference (Chen et al., 2009; Kulviwat et al., 2009; Venkatesh and Davis, 2000), for demographic properties (Yang, 2005), or use context (Mallat et al., 2009). Whilst *perceived*

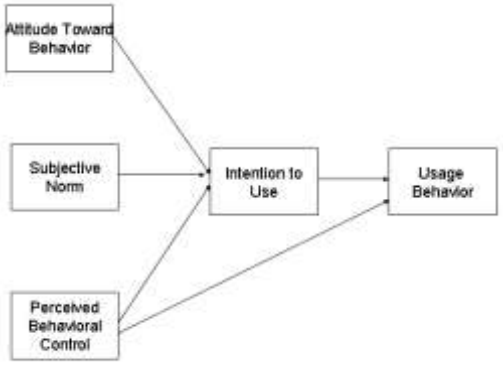
usefulness and *perceived ease of use* remain valid constructs for the model, it fails to provide actionable feedback on central aspects related to the technology (Wixom and Todd, 2005).

Theory of Reasoned Action (TRA)



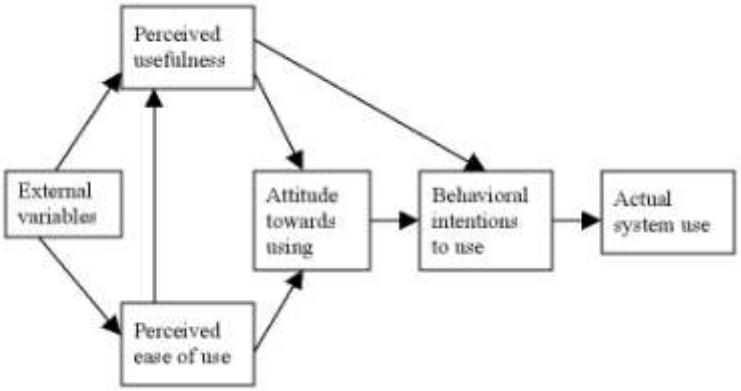
Source: Fishbein&Ajzen(1975)

Theory of Planned Behaviour (TPB)



Source: Ajzen (1991, p. 181)

Technology Acceptance Model (including attitude)



Source: Davis et al.(1989, p. 985)

Figure 2.4 - Three main behaviour-intention models encountered in the literature

Research has attempted to bridge the limitation of TAM by introducing and testing new antecedent components to the existent TAM constructs. Wixom & Todd (2005) identify three primary ways in which the literature has attempted to extend TAM for greater understanding namely: (i) external variables such as demographics, system characteristics and personality traits; (ii) additional belief factors such as *trialability*

and *compatibility*; and (iii) factors from related models such as *subjective norm* and *perceived behavioural control*. Table 2.2 below categorizes the TAM additions encountered in the literature as proposed by Wixom & Todd (2005).

Table 2.2 - Extensions on TAM based on Wixom and Todd classification

A. Factors from related models (moderate influence of Intention to Use)	**B: Additional or alternative belief factors** (moderate influence of *attitude*)	**C: Antecedents to or that moderate the influence of *perceived ease of use* and *perceived usefulness***
Subjective norm and ***behavioural control***(S. A. Brown et al., 2002; Chen et al., 2007; Hsu and Chiu, 2004; Lee, 2008; Schepers and Wetzels, 2007; Venkatesh, 2000) ***Subjective norm*** (Venkatesh and Davis, 2000; Venkatesh and Morris, 2000) and (Kim et al., 2008) – integration of TRA with TAM ***Self efficacy***(Chen et al., 2009) ***Trust***(Gefen et al., 2003; Gu et al., 2009; Ha and Stoel, 2009; Morgan-Thomas and Veloutsou, 2013; Palvia, 2009; Pavlou, 2003)	***Observability* and *trialability***(Chen et al., 2009) ***Use context***(Mallat et al., 2009) ***Fun/Hedonism/Playfulness***(Bouwman et al., 2007; Bruner and Kumar, 2005; Ha and Stoel, 2009; Heijden, 2004; Hsu and Chiu, 2004; Padilla-Meléndez et al., 2013; Rupak Rauniar et al., 2014; Swilley and Goldsmith, 2013; Venkatesh and Davis, 2000) ***Critical mass*** (Rupak Rauniar et al., 2014)	Moderate PU: ***Perceived performance risk***(Lee, 2008; Pavlou, 2003) ***Perceived conveneince***(Yoon and Kim, 2007) ***Perceived quality***(Morgan-Thomas and Veloutsou, 2013) ***Subjective norm*, image, job relevance, output quality result** and ***demonstrability***(Venkatesh and Davis, 2000) Moderate PEOU: ***Consumer visual orientation*** and ***the type of device***(Bruner and Kumar, 2005) Moderate both PU and PEOU: ***Demographics Attributes, Past behaviour, Knowledge and Innovativeness***(Yang, 2005) **Object-based beliefs of the IS Satisfaction Theory** (Wixom and Todd, 2005) ***Arousal and valence***(Lee et al., 2012) ***Funcitonality, Trust, Innovativeness, Relationship drivers***(Zarmpou et al., 2012)

To overcome the limitations of TAM, the model was extended to TAM2 (Venkatesh and Davis, 2000) and later to TAM3 (Venkatesh and Bala, 2008) by producing *"a comprehensive nomological network of the determinants of individual level adoption and use"*. In parallel, and by the same authors, *The United Theory of Acceptance and Use of Technology* (UTAUT) was also developed by Venkatesh et al. (2003) and further extended to UTUAT2 (Venkatesh et al., 2012). UTUAT departs from *perceived usefulness* and *perceived ease of use* and introduces *performance expectancy*, *effort expectancy*, *social influence*, *facilitating conditions*, *hedonic motivation*, *price value* and *habit* as predictors of *behavioural intention* whilst also introducing usage as the final end variable. The model proposes constructs being mediated by one or more of the gender, age, and *experience of use* factors.

Whilst UTAUT has managed to answer a number of earlier deficiencies of TAM, such as the inclusion of social influence, voluntariness and demographics; it remains a model devised and tested in mostly organisational contexts such as Charismatic Leadership and IT adoption (Neufeld et al., 2007), as well as in closed consumer adoption situations such as acceptance of eGovernment (Loo et al., 2009) and internet banking (Martins et al., 2014; Yuen et al., 2010). Bagozzi criticizes the model claiming that it has lost parsimony whilst becoming ever more case specific classifying it as *"a patchwork of many largely unintegrated and uncoordinated abridgements"*(2007, p. 252).

2.2.2 The social dimension

Subjective norm has been introduced in the TRA and TPB to represent the perceived social pressure that induces a user to engage or otherwise in behaviour. In both models it is treated as a predecessor to intention and behaviour respectively and is used as a construct to measure social influence. Such influence is however omitted from TAM due to the workplace setting for which it was developed and tested (Kulviwat et al., 2009). TAM's popualrity and widespread use has left a vacuum in the understanding on how such the social contexts influence technology adoption particulary in the context of high-tech consumer markets (Chen et al., 2007; Dahlberg et al., 2008; Rupak Rauniar et al., 2014; Venkatesh and Morris, 2000). An attempt to address this limitation was made in TAM2 (Venkatesh and Davis, 2000) through the inclusion of *image* and *subjective norm* variables as influencers of *perceived usefulness*.

Social influence as an extension to TAM was considered through various studies (Venkatesh et al., 2003; Venkatesh and Morris, 2000) and *subjective norm* was found to predict *behavioural intention* in various technology adoption contexts. In mandatory situations, *subjective norm* was found to exert a direct influence on *behavioural intention* bypassing *perceived usefulness* and *perceived ease of use* (Venkatesh and Davis, 2000). Yet Kulviwat et al. (2009) identified that social influence only influenced *behavioural intention* indirectly through *Attitude*, a dropped construct in the parsimonious TAM. Kulviwat et al. thus argued that an *Attitude* construct is necessary.

These inferences become more relevant when research yields weak relationships between *Attitude* and *behavioural intention* (Li et al., 2008). Instances where a user has accepted a particular technology may have a high *behavioural intention* but not necessarily a positive *Attitude*. Research by Hsu & Chiu(2004) yielded similar results finding that *subjective norm* did not have a significant direct effect on *behavioural intention* in an online context. They argue that such result might be the effect of a mature market in terms of diffusion and mass media and referents might no longer have any impact on *behavioural intention*.

Such discussion resonates with the DoI (Rogers, 2005) theory where social norms are expected to decline to non-significance as the level of uncertainty declines and the innovation moves through the adoption stages. For example, a study by Kim *et al.*(2008) showed how in a technologically mature market, Korea, *Subjective Norm* yielded no significant relationship on Internet usage. Such findings expose the TAM's inability to explain behaviour longitudinally both in terms of individual adoption stages and market maturity. To address this, Kulviwat *et al.,* (2009) propose a distinction between public and private use. They suggest that the distinction should be viewed as two extreme poles of a construct where technological products would fall. A higher degree of visibility is expected to attract higher social influence on intention.

Arbore et al. (2014) argue that research on how social influences moderate behaviour should go beyond prestige and status gains. They argue that adoption and use yields wider symbolic value as behaviour can convey identity within a social system. They claim that the acquisition of an iPhone, as an example, might mean different things to different users. For some the possession of an iPhone can serve to communicate high status, for others it is a means of communicating openness to novelty and ideas, whilst

for others it might be a way of showing non-conformity. They further propose a distinction between personal and social identity and how these could add symbolic-facets to adoption and use.

Rauniar et al. (2014) further argue that usefulness of a system such as Facebook, must also account for the network effect, that is, the presence of a critical mass of relevant members within the social system that uses the technology. They proposed and tested critical mass as an antecedent to *Perceived Utility* suggesting that the user's perceived availability and effectiveness of relevant tools and features is an antecedent to *perceived usefulness*.

2.2.3 Limitations of behaviour-intention models

A major limitation of behavioural-intention models lies in the inability to predict post adoption behaviour. Most of ICT use is habitual, and, it appears that the behaviour ceases to be guided by an intention after initial engagement (Ortiz de Guinea and Markus, 2009). This resonates with the DoI were habitual behaviours is seen to tend to become systematic, and only an adverse intention would trigger discontinuation. Past research has focused heavily on pre-adoption behavioural-intention models thus leaving a literature gap for post adoption continuation of use (Mark and Vogel, 2009). Ortiz de Guinea and Markus argue that that a better understanding of use behaviour can be achieved if more focus is placed on habitual behaviour which is not always explainable through a cognition understanding or a behavioural intention lens (2009). They proceed to describe habit as a "*well-learned action sequence, originally intentional, that may be repeated as it was learnt without conscious intention when triggered by environmental cues in stable context"* (2009, p. 437). Moreover, Limayem and Cheung (2008) present empirical evidence that the strength of intention to predict usage continuance weakens with a high level of use habit. Such findings strongly imply that intentions cannot be regarded as the only predictor of behaviours. Venkatesh et al, in the UTUAT2 also introduce Habit to account for prior experience using the technology arguing that habit operates as "*a stored intention path to influence* behaviour" (2012, p. 174). They also found evidence to suggest that the impact of habit on behaviour differs with age, gender or experience.

Sun (2013), on the other hand, challenges the '*efficient-choice*' assumption encountered in models such as TAM where the user is seen taking into account all the information at hand and making the best possible choice. Sun suggests that users may

choose to follow herd behaviour, bypassing own beliefs, and not necessarily making the most efficient choice. Instead of cognition, choice is based on observations of others' behaviours where imitation becomes a strategy of avoiding the worst-case scenario by reducing negative disconfirmation. Sun further argues that herd behaviour differs from *subjective norm* as typically information does not origin from word of mouth but rather through observation. Unlike *subjective norm*, in herding behaviour the user does not care how he is viewed by the people he follows, thus their image. The user rather attempts to avoid costs or blame for an incorrect choice.

A further dimension, identified by the literature, but mostly ignored by behavioural-intention models is individual self-control, encountered as *self efficacy* and *perceived behavioural control*. Venkatesh et al. (2012, 2003) introduced self efficacy, and found an insignificant effect on Behavioural Intention, although Self Efficacy did interact with the effort expectancy construct in the UTAUT. Similar findings were also captured in TAM by Chen et al. (2009) and Gu et al. (2009) as Self Efficacy was found to be a strong antecedent to PEOU, while only marginally effecting *behavioural intention*. Hsu & Chiu (Hsu and Chiu, 2004) back the multilevel theory of *self efficacy*, and differentiate between *general internet self efficacy* and the *specific web self efficacy*. They found that the *specific* contributes to the *general* and actual usage whilst the *general* only influences *behavioural intention*. Other literature has tested successfully *perceived behavioural control* as a construct in TAM as a direct predictor of *attitude* in a manner similar to that adopted within the TPB (S A Brown et al., 2002; Chen et al., 2007; Hsu and Chiu, 2004; Lee, 2008). More research is needed to better understand the moderating effects of *self efficacy* and *perceived behavioural control* over time.

A further key limitation for which behaviour-intention models, TAM in particular, are criticised for is the assumed sequential relationship among user beliefs, intentions and behaviour (Bagozzi, 2007). Such assumption is criticized because large variances between beliefs, intentions and behaviours are often encountered. The magnitude of variances can be linked to the specific individual or use context being tested exposing the context specificity of such models. A systematic literature review, conducted by Turner et al. (2010) to determine the strength of TAM in predicting technology usage, exposed that whilst *behavioural intention* typically correlated with actual usage, *perceived usefulness* and *perceived ease of use* did not. Different concerns were expressed by Sniehotta et al. (2014) in reviewing the TPB, arguing attitudes emerge as stronger predictors of behaviour than intention. Such a critique is further supported by

the findings by Bhattacherjee and Sanford(2009) where in a longitudinal investigation on the use of DMS by governmental employees, a significant gap between intentions to use and actual use behaviour was exposed. Legris et al. (2003), in analysing TAM highlight that most studies capture self reported use, which is often imprecise and flawed by biases. They argue that studies applying TAM avoid the measurement of actual behaviour because of the difficulty and complexities that arise.

Bogozzi(2007) argues that behaviour is depicted as a terminal goal and that many actions are pursued not so much as ends in themselves, but rather, as a means to fulfil more fundamental ends or goals. Hence, *perceived ease of use* or *perceived usefulness* may be too strictly linked to the technological aspect of innovation. For example, in complex social contexts of smartphone or social network penetration, *perceived ease of use* or *perceived usefulness* may only account for a partial understanding. Moreover, unless such models can account for the wider social aspects of diffusion, the predictive powers will remain restricted.

Foxall (2007a, p. 14), in adopting a radical behaviourist lens, claims that *attitudes* are simply manifestations of verbal behaviours – wrongly applied in these models to predict other non-verbal behaviours. He argues that models such as TAM need to address the environmental influences that are responsible for both verbal and non-verbal responses and for continuity between them. Behavioural-intentional models are often good predictors of intention or acceptance, but this would not always imply behaviour. However, these models will always account for partial explanation of actual behaviour, especially when behaviour is conditioned by additional external factors that can be both environmental – such as circumstantial, and internal – beyond the conscious awareness of an individual.

2.3 Chapter conclusions

This chapter has presented an overview of the key individual and aggregate theories that describe adoption and diffusion of technologies. At aggregate level, the theories reviewed represent technology diffusion within a social system as a bell-shaped curve where penetration is facilitated by media and word of mouth and where the network effect augments utility derived by users. The literature further suggests that users can be grouped into adopter types enabling a distinction to be made between the characteristics and behaviours of early and late adopters.

At the individual level, the literature proposes a number of attributes that can explain adoption and use including social norms, awareness and propensity. The literature further proposes a number of parsimonious behavioural intentional models, such as TAM, intended to predict behaviour in technology adoption scenarios. However, the predictive strength of these models appears restricted to closed contexts. Attempts to include attributes such as *Subjective norm* and *behavioural control* (Venkatesh et al., 2012) emerge as case restrictive and undermine parsimony.

It may be argued that a unified parsimonious general understanding that describes adoption, use and diffusion is still unachieved. The dimensions of the adoption, use and diffusion phenomenon appear to be influenced by too many attributes such as demographics, experience, observability, *subjective norm*, image, market maturity, position in product life, price, voluntariness, internal attributes (*behavioural control*, novelty seeking, hedonic motivation etc.) and habit as some examples encountered. The interaction between all these items, and the formation of perceptions and ultimately behaviour might be too complex to simply place into an exhaustive yet parsimonious model consisting of a few logically related variables. Even theorisation at a macro level appears to fail to produce parsimony due to the complex dynamics of contagion, opinion leadership, size of market, competition, substitutability and network.

As outlined in the following quotes by two key authors in TAM literature, limited progress has been achieved in the field over the past years because efforts have been limited to replication and extensions. Little effort has gone into challenging the major assumptions on which theories have been built and which might be limiting the opportunity to produce richer and more generalisable understanding.

> *"TAM is a remarkable model and has had an incredible effect on empirical research for a long time. But it seems to have reached a turning point. On the one hand, it is too simple and leaves out important variables and processes. On the other hand, recent extensions of TAM (e.g., the UAUT) have been a patchwork of many largely unintegrated and uncoordinated abridgements." (Bagozzi, 2007, p. 252)*

> *"The bad news, however, is that, for a small field like information systems, an excessive focus on replication and minor "tweaking" of existing models can hinder progress both in the area of technology adoption and in information systems in general. This, of course, does not mean research on technology adoption is dead. Rather, it suggests the need to focus on important and interesting questions in this area of research. In comparing the progress of technology adoption research to TPB and job satisfaction research, we have identified a number of directions where new research in the domain might usefully be directed. Moving forward, we believe that a valuable next step for researchers in the area may be to use this comparison as a basis to build a framework-driven set of future research directions that can leverage current knowledge and that are focused on today's relevant business problems." (Venkatesh et al., 2007, p. 279)*

An alternative vantage point through which this topic can be analysed and the above core assumptions questioned is warranted. The next chapter introduces Skinnerian *radical behaviourism*, as proposed within the *Consumer Behaviour Analysis* (CBA) programme, as an alternative perspective through which ICT adoption and use can be explored.

3 ICT adoption and use: a behavioural perspective

> *"The skin is not that important as a boundary. Private and public events have the same kinds of physical dimensions." (Skinner, 1984, p. 617)*

This chapter introduces *radical behaviourism* as pursued through the *Consumer Behaviour Analysis* (CBA) programme and as an alternative perspective to exploring the topic. The chapter starts by introducing the foundations of *radical behaviourism*, highlighting *operant behaviour* and *contingencies*. The chapter proceeds by arguing that *radical behaviourism* does not reject private events, and whilst reviewing the main tenets behind *verbal behaviour* it also delves into the realm and importance of accounting for *intentionality*. The *Behavioural Perspective Model* (BPM) and *intentional behaviourism* are then introduced and discussed whilst its interpretative strength to explain behaviour is explored. The last part touches briefly on the evolutionary foundations of technology adoption and use.

The theories outlined in the previous chapter treat the user as an *'economic person'*, that is, an informed and rational agent that always seeks to maximise utility. Yet, these theories struggle to explain instances where the user is observed engaging in behaviour that yields no functional utility, such as when a user specifically acquires a pink coloured smartphone even if such attribute adds no functionality. As discussed, the literature has tried to account for such instances by proposing extensions to theories. *Playfulness* (Padilla-Meléndez et al., 2013; Rupak Rauniar et al., 2014; Swilley and Goldsmith, 2013) and *innovativeness* (Zarmpou et al., 2012) are examples of such factors that influence attitudes, intentions and usage. Yet, extensions seem to be context specific and a unifying understanding for adoption and use in diverse ICT consumer contexts remains elusive.

This study adopts a Skinnerian *radical behaviourist* (Skinner, 1984, 1981, 1976) vantage point to address the identified gap. As a philosophy of science, *radical behaviourism* offers two research openings. First, it accounts for both genetic and environmental histories, therefore offering deeper insight on what users might maximise in emitting behaviour. Secondly, it treats introspective accounts as

manifestation of social behaviour (*verbal behaviour*), rather than cognitive decision processes.

3.1 Behaviourism

Behaviourism is a theory of learning based upon the idea that behaviours are acquired through conditioning, and therefore occur through interaction with the environment. Behaviourism holds that behaviour is shaped by responses to environmental stimuli. The concept of a *black box* was introduced to avoid private introspection whilst manifest behaviour, as a process of stimulus-response, became the sole focus of inquiry. Scientific enquiry provided for systematic observation and manipulation of behaviour.

Behaviourism knows its origins at the turn of the twentieth century as a response to a scholar scene dominated by Sigmund Freud's (1956 - 1939) *Psychodynamic* theories, criticized for over relying on non-systematic approaches and seen as conjectures based on introspection. Behaviourism was inspired by a needed feel for a more scientific way of explaining, measuring and presenting psychology. The origins can be traced to the work of to John Broadus Watson (1878-1958) and his interests in *classical conditioning*. Watson, as a behaviourist viewed psychology *"as a purely objective, experimental branch of natural science which needs introspection as little as do the sciences of chemistry and physics"* (Watson, 1913, p. 176). Watson's behaviourism, termed *Methodological Behaviourism*, posited that psychologists should only investigate external behaviours and reactions on given situations, whilst internal and mental states are seen as mostly not relevant, and are solely conducive to speculation. Known for the infamous experiment of *"Little Albert"*, he founded behaviourism at Johns Hopkins University. Later he shifted to the advertising industry as vice-president of a leading agency employing classical conditioning principles in the design of hugely successful campaigns for products as diverse as Pond's Cold Cream, Maxwell House Coffee, and Johnson's Baby Powder.

Watson's ideas were based on work undertaken by Ivan Petrovich Pavlov (1849-1936), who focused on adaptive reflex to food through a study on dogs and psychic secretion. Through classical conditioning Pavlov demonstrated that the animal could learn to associate the sound of a bell with the arrival of food, thus a stimulus-response conditioning. Pavlov proposed that adaptive reflex had evolved to ensure that the

digestive system was prepared for food that would be expected to enter the stomach. He showed that the bell alone could signal the impending arrival of food, inducing a salivatory reflex before the food itself was even within the animal's field of vision.

Another key contribution to the understanding about how organisms learn emerges from the work by Edward L. Thorndike (1874-1949) and his *Law of Effect* theory (1911). His work revolved on animal learning experiments conducted within a 'Puzzle Box' apparatus. Thorndike observed how a caged cat would initially discover by accident that by hitting a latch it would gain access to food. His experiments demonstrated that with time the subject would start to hit the latch and access food more frequently with the rate of success increasing gradually over time. Thorndike's theory posited that behaviours that produce a satisfying effect tend to occur more likely and frequently. In contrast to classical conditioning where two stimuli are associated, in the *Law of Effect* theory behaviour is associated with an outcome. Such learnt behaviour, as proposed by Thorndike, is not the result of the animal's awareness about the latch and its function. Rather, he proposed that such behaviour is none other than a mere Pavlovian stimulus-response form of learning. In line with the views of Watson, Thorndike retained a strict objective view that excluded any mental explanation to behaviour.

Thorndike's work served as the foundation for the Operant Conditioning theory by Burrhus Frederic Skinner (1904-1990). Skinner believed that learning consisted of a series of stimulus-response associations that iteratively lead to behaviour. Skinner, unlike Thorndike, believed that organisms can learn behaviour outcomes, and can learn that behaviours are followed by consequences – either positive or negative. He developed a laboratory setup, the *Skinner Box,* in which subjects, mostly pigeons, could be isolated from external stimuli. This allowed experimentation and measurement of animals' stimuli-response behaviour. The setup enabled Skinner to record graphically the response of the animal and to establish controlled methods of capturing the effects on response rates of various reinforcement schedules.

Skinner believed that scientific enquiry must focus on the causes of an action and its consequences. His views were not as extreme as those of Watson, as he did not negate the existence of the mind. Put simply, Skinner's *radical behaviourism* aspired to treat behaviour as a natural science (Baum, 2011). He argued that studying observable behaviour is more likely to produce meaningful results than basing on speculative

internal mental events. Hence, a Skinnerian radical behaviourist explanation would avoid making reference to internal events and states such as attitudes, emotions, feelings and physiology, although, their existence is not denied(Skinner, 1976). Skinner's efforts may therefore be summed as an attempt to provide an objective explanation of human behaviour through science.

Core to Skinner's *radical behaviourism* is the notion of *operant behaviour,* where the behaviour is seen to operate on the environment and is maintained by its antecedents and consequences (Skinner, 1953). In contrast to earlier approaches, Skinner adopted an inductive and descriptive behaviourism that located evidence of behaviourism in three processes – the behaviour, the environment and the consequence. Such structure is stronger than *classical conditioning*, as it caters for both positive and negative reinforcements, and for punishments. Therefore, the likelihood that behaviour is repeated can be determined by whether its consequences are positive or negative and by their intensity.

Operant behaviour is expressed through the three-term contingency typically represented through an equation, presented below, where *R* represents behavioural *response* to the *situation stimuli* represented by S^d, and where S^r represents consequences. Consequences are considered reinforcing when these strengthen or increase behaviour or punishing when these decreases or suppresses behaviour.

$$\boldsymbol{S^d - R - S^r}$$

Through the three-term contingency S^r can increase or decrease the likelihood of repeating the behaviour in the future within a similar situational environment. When consequences are positive, the behaviour is reinforcing and likelihood of repeating in future increases. When behaviour triggers punishment as a consequence, the likelihood of repeating behaviour in future diminishes. Based on such structure Skinner identified four types of consequences namely *positive reinforcement*, *negative reinforcement*, *positive punishment* and *negative punishment*. Examples of each in a consumer ICT context are presented below.

i. **Positive reinforcement:** A user who plans to go on holiday*(S^d)* checks the prices on the internet*(R)*and gets better prices than those offered by the travel agent *(S^r)*. As the behaviour is reinforced, the likelihood that the user will search the internet when planning future holidays increases.

ii. **Negative reinforcement:** A user gets bad service from an online retailer *(S^d)* and decides to protest by writing an email *(R)*. The online retailer resolves the problem by refunding the money *(S^r)*. The user's behaviour is reinforced as the aversive situation is removed. The likelihood of sending an email in similar situation will increase.

iii. **Positive punishment:** A user's smartphone rings in the middle of an important business meeting *(S^d)*. The user gets an angry look from his superior *(S^r)* for not turning the phone off prior to the meeting *(R)*. A punishment in the form of disapproval by the superior is exerted.

iv. **Negative punishment:** A user expresses strong political views *(R)* on Facebook *(S^d)*. Many remove the user from friend *(S^r)*. The user is unlikely to post strong political views on Facebook in the future. A punishment in the form of loss of friends has been sustained by the user.

In operant literature, complex behaviours are treated as chains of smaller behaviours (Fantino, 1977). The theory suggests that a complex behaviour can be broken down into a chain of smaller behaviours explainable distinctly through a three term contingency where each acts a secondary reinforcer for the preceding behaviour. Fagerstrøm and Arntzen(2013; 2005) have applied operant chaining to analyse online shopping behaviour, and explored how the user goes through a chain of several responses ending with the acquisition as the primary reinforcer. The primary reinforce is typically delayed so the consumers will have to wait until they go through all the chain till the end before final experience of reinforcement.

3.2 Unit of behaviour

An in-depth understanding of technology adoption and use cannot be fully developed unless the long term pattern of behaviour is taken into account. The distinction between 'events *in the moment*' and behaviour *'over time and space'* is encountered in *radical behaviourism* and is captured through *molar* and *molecular* behaviourist views. This distinction is also the source of disagreement on various fronts among the key scholars in the field. A *molecular* approach dissects behaviour into the smallest discrete units, '*bits and pieces'*, usually referred to as responses (Baum, 2004, p. 349).

A molar view, in contrast, focuses on behavioural patterns, activities that extend over space and time.

While the molecular view is constrained to the moment, for example the pressing of a lever or the 'footstep', the molar uses gerunds to describe activities (Baum, 2004, p. 349). Skinner's approach to behaviour, mostly in view of his laboratory experiments is sometimes characterized, erroneously, as a *molecular* view of behaviour.

The origin of molar behaviourism may be attributed to the work of Richard Herrnstein, a colleague of Skinner at Harvard. Herrnstein focused on the quantitative analysis of behaviour. His major contribution was the development of the *Matching Law* (1970), which describes the tendency of animals to allocate their choices in direct proportion to the rewards they provide, and the *Melioration Theory* which explains how animals shift behaviour from the poorer to the richer reinforcement schedule. Key contributors to the molar view include William Baum and Howard Rachlin, although the latter prefers to call himself as teleological to emphasize the use of Aristotle's concept of final causes (Rachlin, 2011).

In attempting to provide an explanation for consumer ICT use, a molar view would focus on the adoption and continuous use of smartphones and social networks over time. Pressing a button on a smartphone or *like* on Facebook, as 'events in the moment', would be viewed irrelevant. Behaviour is seen as the ultimate product of an organism's history and not a mere response to the occasional situation. The molar view is only concerned with long term habitual trends and patterns of use. It is concerned solely in what is observable namely: the frequency and rate of reinforcement. Furthermore, behaviours are viewed as competing for time, a finite resource for the consumer (Baum, 2015).

Hence theories of melioration and their derivatives are viewed to provide explanatory powers in describing how consumers might change behaviour patterns over time. According to Baum(2013, 2004), a molar behaviour must satisfy four basic principles: (a) only whole organisms behave; (b) behaviour is purposive; (c) behaviour takes time; and (d) behaviour is choice. He sums up the understanding of molar behaviour by claiming that "*because an activity takes a certain amount of time, its parts together take up that time, and therefore the parts must compete for portions of that time"*(2013, p. 290).

While a molar view adds value to the objectives of this research, key advocates including Baum adamantly hold strong on two main positions which stir controversy and disagreement between *radical behaviourism* scholars, and which if followed, would considerably limit the potential of this study. First they argue that Skinner's behaviourism, considered by them as molecular, is obsolete since it has served its original purpose but can produce very little new insight to present research contexts. Secondly, they reject the existence of mental states by claiming that a molar inquiry can produce understanding without reference to mental states. Without delving into the perennial philosophy of science debate of the old mind-body problem, which can never be attempted in such review, the main arguments that reject such an extreme molar view are presented below.

A comprehensive understanding of behaviour can be acquired if understood at the different levels of analysis (Catania, 2011; Malone, 2004). Such argument holds in particular when attempting to understand behaviours in technology adoption contexts and the interaction between the user and the environment. Yet such view is very limiting as it would offer very little new understanding on behaviour change such as adoption and discontinuation particularly since the molar stance omits any account of history(Catania, 2011).

Secondly, Baum is criticized for misreading Skinner, especially his later work (Catania, 2011). Skinner's laboratory animal experiments could at first induce one to consider his work to be characterised as *molecular*, but his later work exposes the contemplation of a wider perspective (Skinner, 1981, 1976, 1957a). Skinner's view went beyond 'events in the moment' as it provided for novel approaches to explain behaviours which beyond operant conditioning also accounted for verbal behaviour, phylogeny and culture.

Finally, many behaviourists do not share the molar view that private events are not relevant or inexistent. In Watson's methodological behaviourism, private events were inaccessible events beyond the reach of science and therefore, could not feature in any scientific inquiry. Such a view did not permit mental states to be regarded as there was no opportunity for objectivity if such approach was pursued. Skinner did not agree with this position as in his view, such inaccessible events were potentially approachable if these led to forms of behaviours that were publicly observable namely verbal behaviour (Catania, 2011). Hence, whilst Skinner retained that experimental

control and manipulation was paramount, only behaviour that could be objectively observed, measured and independently verified, could be taken into consideration as worthy of investigation.

3.3 Radical behaviourism

As discussed above, *radical behaviourism*, the strand of behaviourism on which this study is built, is often incorrectly attributed to a rejection of the existence of mental states – feeling, thinking and to an extent interaction with other consumers. Skinner, whilst retaining the scientific approach based mostly on experimentation, considered that empirical study should only take into account behaviour that can be independently observed and verified. He disagreed with the methodological behaviourism stance as he did not reject the existence of internal events. Rather he considered internal events as legitimate phenomena to examine. He viewed internal states such as thinking and reasoning not as *private* and *mentalistic*, but rather as potentially public, via independent observation and verification. Skinner believed that internal events such as thinking can be regarded as *publicly verifiable* if observed to be exerting control over behaviour or causal explanation. In *radical behaviourism*, thinking and deciding, despite occurring within the individual, do not directly equate to a private event, rather they are considered behaviours '*in their own right*'. If it can be shown that such acts can have an influence upon an observable behaviour, then such events can be considered valid for inclusion within a scientific study (Skinner, 1957b).

> *"One solution often regarded as behaviouristic, granting the distinction between public and private events and ruling the latter out of consideration, has not been successful. A science of behaviour must face the problem of privacy by dealing with events within the skin in their relation to behaviour, without assuming they have a special nature or must be known in a special way." (Skinner, 1984, p. 615)*

Moreover, Skinner (1957a) made additional contribution to the behaviourist realm though his work on *verbal behaviour*. He acknowledges that humans, unlike other species, have the capacity to interact via language, and that this could be interpreted as an external observable behaviour especially since it can serve as a reinforcer for the listeners. He viewed language as the enabler for *rule-governed behaviour* whereby the

listener's behaviour is affected by instructions, advice, maxims, and laws communicated through language. Rules serve as *discriminative stimuli* through which the behaviour of the listener is regulated. Through such understanding, culture, social norms and values became relevant to a behaviourist approach. Skinner further considered that individuals can learn without actual experiences through the emission of verbal behaviours of others as these can yield the same reinforcing effect. In the context of this study's focus, consumer ICT adoption and use behaviour, norms, opinions and views appear to play a strong role. This is a major departure from the rigid methodological behaviourism and its restrictions.

In *Selection by Consequences*(1981), Skinner extended his understanding by postulating that behaviour is shaped through three levels namely: (i) biology - the natural selection or phylogeny of the animal, the sub-personal level; (ii) behaviour - the reinforcement history or ontogeny of the behavioural repertoire of the animal; and for some species, (iii) culture - the cultural practices of the social group to which the animal belongs. The sub-personal, evolutionary foundations of behaviour are briefly discussed in the Section 3.5.

3.3.1 Rule-governed behaviour

In early work by Skinner behaviour was mainly treated as contingency-shaped, shaped by what previously was learnt through direct experiences namely positive or negative, punishments or reinforcements. While for non-humans this might still hold, Skinner identified that humans had a capacity for language which unlike other organisms, allowed them to shape behaviour differently and more efficiently. It must be stressed from the outset that Skinner considered the capacity of language, verbal behaviour, and no other than another form of behaviour amenable to analysis as operant behaviour. The difference was that unlike non-verbal behaviour, verbal behaviour had a reinforcing effect on others rather than on the emitter (Skinner, 1957a).

Language enables humans to engage in rule-governed behaviour through the provision of instruction rather than through trial and error. It provides for a different form of learning as humans can learn from others' experiences. Members in a social system can learn from the failures and success of each other and therefore do not need to experience any form of reinforcement before learning takes place. Such view extends *radical behaviourism* to explanations beyond linguistics as it offers an explanation for

culture including, and most importantly for this study, the diffusion of technology and its use within a social system.

This does not imply that, as discussed in the previous chapter, consumer '*positive attitudes*' and '*intentions*' as predictors of behaviour, are acceptable stances within *radical behaviourism*. Skinner believed that internal subjective behaviour, beliefs and intentions, should still be mostly avoided. Rather, the consumer should be viewed as learning from the conveyed experiences of others thus acquiring rules that would shape future behaviour. Such view still excludes any need to account for introspection since it is held that behaviour is shaped by learnt rules and not thinking.

Yet Skinner acknowledged that unlike overt behaviour, such as those explored under test conditions in laboratories, verbal behaviours, and other potentially observable internal events, are less amenable to conventional and more objective means of measurement. Notwithstanding that Skinner held that the experimental method remained the preferred mode of inquiry, he conceded that in such situations, interpretation must be considered as a valid scientific approach if causal explanation for behaviour is to be sought and as long as no recourse to introspection is made. Such view resonates with the inductive interpretative nature of this study which is retaining a post-positivist philosophical position as further explained in Chapter 4.

Skinner (1957a) went further to propose that human verbal behaviour could be explained through different verbal operants. Amongst these, and mostly relevant for the purpose of this study, is the use of *mands*. *Mands* constitute of verbal behaviours evoked by *motivation operation*, which is subsequently reinforced by a response-specific reinforce (Michael, 1993, 1988, 1982). *Motivating operation* refers to the momentary effectiveness of consequences in operant conditioning. A classic example of a *mand* includes a situation where a child asks his mother for food because he feels hungry. In this example hunger acts as the *motivating operation* whilst food is the reinforcer.

Whilst Skinner focused mostly on the behaviour of the speaker, verbal behaviour of the learner was addressed in the work of Zettle and Hayes (1982) who proposed *pliance*, *tracking* and *augumental*. *Pliance* is behaviour in response to a *mand*. It constitutes rule-governed behaviour under the control of socially-mediated consequences and antecedent verbal stimuli. The communicated rule, that could entail a request or

instruction, is referred to as a *ply*. Whilst *pliance* is under the control of the speaker, *tracking* denotes how the physical environment is arranged. Following instructions on how to make use of a technology is an example of *tracking*. Finally *augumental* denotes a strong motivational observation setting rules for a reward or punishment. An example of *augumental* is replying to an invitation to *like* a brand on Facebook and benefiting from a discount.

Foxall (2013) argues that the above distinctions in verbal behaviour point to two sets of contingencies namely the social consequences and the natural contingencies. He posits that the social precede the natural particularly in the context of *pliance*. For example suppose a teenager is given orders, rules, by parents on how to behave when interacting on an online social network. By complying with rules, the youngster would first be rewarded through parent approval, but later through a physical reinforcer as harm is avoided. Foxall further argues that despite behaviour may be shaped by both rule-governed instruction and contingencies, private events assume a central role in formulating and responding to rules. He stresses that *radical behaviourism* does not exclude the existence of such private events. A user may 'reflect' on the contingencies and draw own conclusions on a strategy on how best to proceed. He argues that users may construct own rules based on personal interpretation and based on experience.

3.3.2 Accounting for private events

The design appeal of an iPhone, the loyalty expressed towards a brand, the pleasure of discovering a new technology, the fear of technology complexity, and the prestige experienced by owning a premium or exclusive technology, are all examples of private events which may not be directly observable through conventional scientific means. Yet, as outlined in the previous chapter, such internal events remain central and important to adoption and use contexts. Marketing and word of mouth, drivers behind diffusion, are built on inducing such internal events.

Can *radical behaviourism*, a philosophical position strictly intended to account for behaviour, often seen reducible to simple operant structure, be able to widen its explanatory powers to account for such apparently complex instances? How can such phenomenon be accounted for within a radical behaviourist framework without jeopardising the strict scientific nature of inquiry?

Not all scholars agree that *radical behaviourism* can or should account for internal states. Some, like Baum (2013, 2011) and Hocutt(2007), stress that there is no place for what is treated as mental in behaviourism. Foxall(2013, 2007b), on the other hand, argues in favour of a shift claiming that the present understanding is limited on various fronts mainly the lack of understanding at the personal level, inability to explain behaviour continuity, and, the interpretation of behaviour not amenable to experimental analysis. Foxall argues that a core attribute of radical behaviourists is that it strictly uses extensional language, which enables the method and object of inquiry to remain scientific. Cognitivists, on the other hand, are open to the intentional, something Skinner avoided throughout his work.

A scholar foundation to explaining private experiences and their *aboutness* can be located in the philosophical distinction between the extensional and intentional. This distinction emerges in the arguments of Franz Brentano in the late 19th century. Brentano (1874) postulated that mental accounts can be distinguished from physical phenomena by *aboutness*, the direction to an intentional object, belief or desire. Examples of extensional language include statement such as '*This Samsung S6 has 16GB memory*', '*Facebook is a social network*' and '*iPhone is very popular amongst young people*'. Examples of intentional statements, on the other hand, might include '*I think that this smartphone is fast*', '*she enjoys using Facebook to make friends*' and '*young people believe that iPhones are cool*'. Two linguistic characteristics can be used to distinguish between extensional and intentional.

First, intentional claims, against extensional, are not referentially opaque, therefore meaning that it is not always possible to substitute '*co-referential*' expressions without altering the truth of sentences. '*I think that this smartphone is fast*' is not the same as '*I think that the Samsung S6 is fast*'. Unless the person making the claim is aware that reference is being made to the same device, then the statements are different. On the other hand '*Samsung S6 has 16GB memory'* is the same as saying '*The latest Samsung smartphone has 16GB memory*' thus making extensional statements referentially transparent. The second characteristic is *Intentional Inexistence*. Brentano, who coined the term, claimed that objects referred to through intentional language may not exist. Claiming that '*I believe that someone is eavesdropping on my phone conversations*' might mean that the statement is untrue. However claiming *'I am calling my friend Mauro'* means that there is someone called Mauro and that there is a phone which is being used to make the call.

The importance of this distinction is relevant because intentional claims cannot be translated into extensional ones without impacting on meaning. Such distinction in the use of language therefore appears to lead to a distinction between the cognitive and behaviourist realms. A statement of the form, '*She said the iPhone is cool*' falls in cognitive realm whilst if she said '*the iPhone is cool*' it would fall under the behaviourist realm (Foxall, 2007b, p. 6). This distinction and limitation puts behaviourism at a handicap when dealing with unobservable phenomenon such as wants, attitudes and preferences since both cannot be communicated using an extensional language.

Foxall(2013, 2007c) argues that extensional language is particularly limited when dealing with the continuity of behaviour as it fails to provide an explanation for the influence of learning history on behaviour. He argues there is no alternative but to revert to the actor's beliefs and desires to understand choices. He argues that a behaviour that has been repeatedly followed by a particular reinforcing stimulus is automatically re-enacted when a similar setting is encountered. He questions why a rule that describes certain physical or social contingencies continues to be followed when contingencies that no longer match those of the original situation continue to be encountered.

The radical behaviourist stance would require that a common stimulus is present every time a response is emitted. The stimulus must be a learnt discriminative stimulus or a reinforcer. However, Foxall argues, that some changes take place within the organism that allow for the *'recording of the experience'* of previous behaviour to become available at later occasions when the same setting is re-encountered. In continued behaviour over time, it is not always possible to locate all the elements of the three-term contingency when the behaviour is learnt or performed. This leads to an assumption that something is occurring within the organism, which cannot be dealt with, without reverting to intentional means.

In addressing the intentional and extensional distinction, Foxall suggests that consumer behaviour can be understood in three levels namely: (i) the overt impact on the environment, hence the utilitarian and informational effect (explained at a later stage); (ii) the personal level, that entails emotions and motivational states that can only be expressed through intentional terms; and (iii) the sub-personal level,

explainable though the neural infrastructure and the phylogeny foundations behind evolution. Levels (i) and (iii) can be described through extensional scientific representation. This distinction between the levels of understanding will be used throughout the study.

Table 3.1 - Three levels of behaviour and corresponding scholar enquiry

Level		Language	What is observed	Strategies (examples)	Theory location
I	Sub-personal (Biology)	Extensional	**The brain** The neurological structures, their functions, relation and effect on behaviour emission	FMRI techniques	
Ii	Personal (Psychology)	Intentional	**Cognition** Perceptions, attitudes, intentions and self control	Cognitive realm qualitative and quantitative based tools	TAM, TPB
		Extensional	**Emotions** Motivation Symbolic reinforcement	Standardised quantitative instruments such as PAD	*BPM-I,* PAD
Iii	Behaviour (Psychology - Sociology)	Extensional	**Behaviour** Measuring behaviour emission and impact on environment	Behaviourism, Behavioural Economics	*Matching law BPM-E*

The personal level of experience of the actor, avoided in behaviourist literature, is central to this study. Actor accounts such as iPhones being '*cool*', BlackBerry being '*business looking*', and playing snake is '*fun*' are clear examples of personal experience which cannot be represented at either of the other levels, and surely beyond the more conservative radical behaviourist reach. It is this kind of intentional language that is used by marketers in advertisement, and is carried by word of mouth in diffusion scenarios.

To clarify the place for this distinction in this study, and in aligning to Foxall's stance and to Skinner's views, intentional language has been considered valid data within inquiry as long as it satisfies some basic rules. However every effort is made to use extensional language in the representation of findings and discussion. The core objectivity of behaviourism is retained as long as the phenomenon is explored and presented through a scientific extensional language.

3.4 Consumer Behaviour Analysis

The core objective of the *Consumer Behaviour Analysis*, a research programme fronted by Professor Gordon Foxall, has been to ascertain the contribution that behavioural psychology can make to the study of consumer choice (Wells, 2014). This

has led to the development of the *Behavioural Perspective Model of Purchase and Consumption* (BPM) (Foxall, 2007a, 1994) and its testing '*to destruction'* with a view to exposing and exploring the role behaviourism can play in explaining consumer behaviour. A second equally important objective, and equally relevant to this thesis, has been an effort to expose the '*bounds of behaviourism*', thus identifying the limitations of behaviourism and therefore, where and if needed, the addition of intentional and cognitive explanation (Foxall, 2015, 2013, 2007c). This section first outlines the BPM and its relevance to the topic of investigation. Then it proceeds to discuss how the inclusion of the intentional stance within the model can increase its explanatory powers. In the final part the use of the model as an interpretative device is discussed.

3.4.1 The Behavioural Perspective Model

The BPM has been applied in various consumer behaviour contexts including mundane choice of grocery products like choice of biscuits (Wells et al., 2010), consumption of fish (Leek et al., 2000a), environmental deleterious behaviours (private transportation, domestic energy, waste disposal, and domestic water) (Foxall et al., 2006), and the service environment (Foxall and Greenley, 1999). Whilst the model has been tested mostly within western cultures, its transferability to other cultures has also been demonstrated such as in Venezuela (Soriano et al., 2002). The BPM has also been applied amply in technology related contexts including multichannel apparel shopping (Nicholson et al., 2002); online purchasing (Fagerstrøm, 2010), mobile marketing (Yermekbayeva, 2011), ageing consumers (Wilson, 2014) and email marketing (Sigurdsson et al., 2013). The BPM framework, see Figure 3.1, follows and elaborates on the Operant three-term contingency (S^D – R – $S^{R/A}$), the basis of operant behaviour (Foxall, 2007a, 2007c, 1992). The model aims to serve as a means to predict and interpret human economic behaviour in naturally-occurring settings and focuses on humans as consumers, although from its application in literature, it is intended to tentatively explain all forms of behaviour including adoption and use of consumer ICTs.

Figure 3.1 shows how the BPM builds on the radical behaviourist three-term contingency. Behaviour is preceded by a discriminative stimulus (S^D) shaped by previous experiences, and *motivating operation* (MO) which is induced by the environment (Fagerstrøm, 2010; Fagerstrøm et al., 2010) and both referred to as the *Consumer Behaviour Setting (CBS).* S^D signals potential outcomes of behaviours such

as the availability to a particular type or brand of technology whilst *motivating operation* primes the consumer to behave in a certain way. The CBS is subject to the degree of openness of the particular behaviour. Open settings allow for a wide-ranging behaviours whilst closed settings are limited to a single course of action with minimal option.

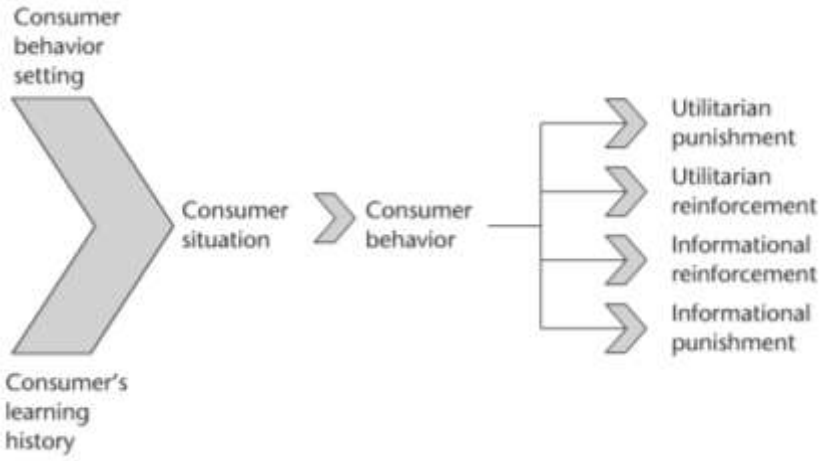


Figure 3.1 - Summative Behavioural Perspective Model

The CBS is presented as a continuum with the open and closed settings at the very extremes. In closed settings S^D are typically controlled by individuals other than the consumer to ensure conformity to desired behaviour. In contrast, open settings, are however marked by the lack of physical, social and verbal pressures to conform to set patterns of behaviours. In the context of technology use, an open setting may be represented by the purchasing experience of a smartphone, where the consumer is bombarded by various purchase opportunities, and where the attributes of the offerings are mostly different from each other. A consumer has the option of browsing and deciding if, what, when and where to purchase. At the other extreme, a closed setting would be the topping up of a smartphone pre-paid account with call and data credit. While the consumer must initiate the process, failing to top-up an account would imply the eventual inability to use the smartphone. The topping-up process is typically designed for efficiency leaving limited options for the user.

The *learning history*, which also precedes the behaviour, is understood as the way in which the outcomes of previous behaviours influence present choices. In line with the operant structure, the BPM proposes that when the consumer is in a context similar to earlier behaviours, the CBS is primed to favour behaviours over others. Behaviours

that were met with positive reinforcement in previous occasions are encouraged, whilst other behaviours that were punished, are discouraged and primed for discontinuation. This interaction between the CBS and *learning history*, the *consumer situation*, leads to behaviour.

The BPM, following the operant structure, factors for consequences through *reinforcing stimulus* (S^R). Beyond classifying consequences in operant terms as reward or punishment, or positive or aversive, the BPM also distinguishes between utilitarian and informational behaviour consequences. *Utilitarian reinforcement* depends on the technical and operational benefits, or lack of, resulting from the behaviour. Therefore, utilitarian reinforcement is derived "*from the satisfaction produced by buying, owning and consuming economic goods*" (Foxall, 2007a, p. 8). *Informational reinforcement*, on the other hand, refers to *the social outcomes of consumption* - as the feedback provided "*on the consumer's performance, especially the social status, produced by conspicuous consumption"* (2007a, p. 8).

While utilitarian reinforcement is mediated by the product or service itself, the informational reinforcement is mediated socially. Such a framework provides for new explanatory opportunity in the domain of technologies that are evermore ingrained into the social life of users. For example, all smartphones allow for the same basic functions such as making a phone call, sending a message and using the internet. Nevertheless, using the very latest iPhone to call a friend may also attract social feedback related to identity, status and prestige potentially yielding a higher level of reinforcement.

The BPM proposes that both sources of behavioural consequences are orthogonal and hence, these exert independent influences on the consumer's choice (Oliveira-Castro et al., 2010). Hence, each of the reinforcers can be separately high or low, and behaviour results from the combination and interaction of both reinforcers. For example many people acquire the latest iPhone both for its sophisticated functionality but also to be seen owning it. This is expected to yield high utilitarian and informational reinforcement as the user obtains high utilitarian and social rewards. However, on the other hand, owning and using a Casio calculator to satisfy mundane work related needs would typically yield low utilitarian and informational reinforcements as its utility is merely conformity to work requirement and offers no social benefit.

Such reinforcement can yield a mix of highs and lows. For example, acquiring a Linksys top of the range wireless router for home use would provide very high utilitarian benefit through a faster, more resilient and more effective Wi-Fi coverage within the home. Nevertheless, this would not typically provide any social advantage. In contrast owning a set of expensive Beats Headphones, described by the press as *'all show but no punch'*(Gibbs and Phipps, 2014), will only serve to send a status message to those around.

The combination of utilitarian and informational benefits is presented in the BPM as a pattern of reinforcement rather than the more conventional schedule of reinforcement adopted in Operant theorisation. Through this shift, the model aspires to be more adequate for explaining complex choices that take place in the market against the tradition behaviourist view of observing and measuring behaviours in an experimental laboratory setup. Based on this premise, the BPM categorises consumer behaviour in four operant classes namely: maintenance, accumulation, hedonism and accomplishment. Figure 3.2 below maps the four operant classes on the combinations of utilitarian and informational reinforcements.

	High utilitarian reinforcement	*Low utilitarian reinforcement*
High informational reinforcement	**Accomplishment**	**Accumulation**
Lowinformational reinforcement	**Hedonism**	**Maintenance**

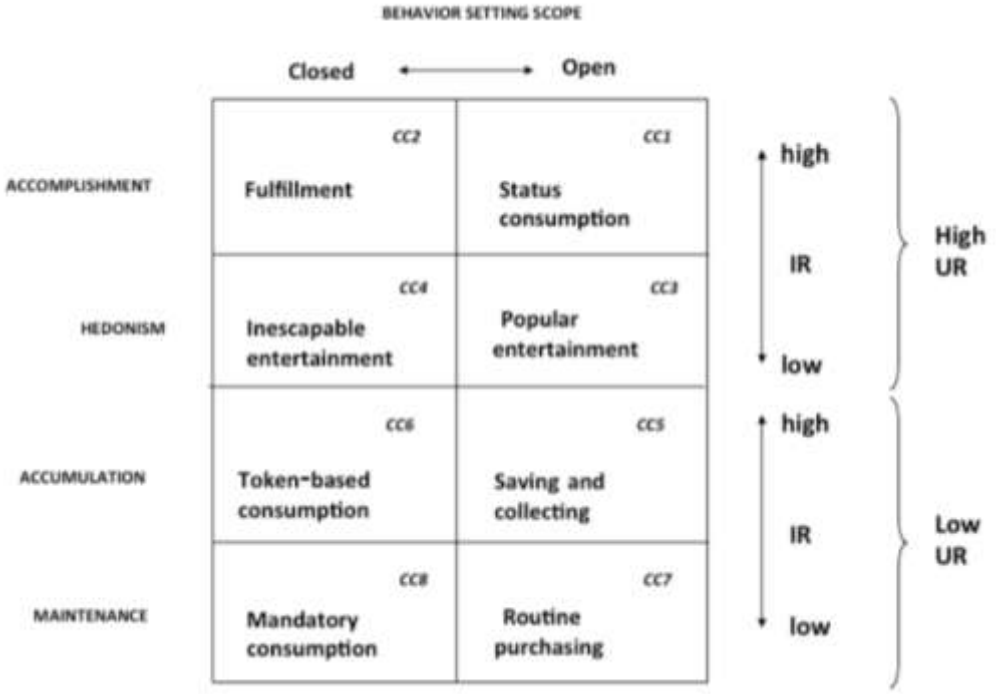
(Source: Foxall, 2007c, p. 10)

Figure 3.2 - Operant Classes of Consumer Behaviour

Different consumers have different social and economic contexts and therefore, any examples proposed to represent each category must be seen relative to a specific user context. Behaviour that for a person causes a social or economic advantage, thus a reward, for another it might be a mere attempt to conform to the norm with little utilitarian or informational reinforcement. However, for the latter, nonconformity could result in punishment or reward, depending on the respective social or economic context. For example in a group of youths from affluent backgrounds, owning an

iPhone would be the norm. Those that do not conform within the group would probably be punished by losing out on their social status. On the other hand, a youth with an iPhone would get positive social feedback and gain social status in a less affluent context where the iPhone is not the norm.

Foxall (1993) further proposes a contingency matrix that maps the four operant classes on the *behaviour setting scope* that distinguishes between open and closed behaviour settings (Figure 3.3). Open settings permit a wider range of behaviours to be enacted whilst a closed setting is typically limited to minimal options and a defined set scope.



Source: Foxall(1993, p. 31)

Figure 3.3 - BPM Contingency Matrix

3.4.2 Adopter categories

Foxall (2007a, 1994) has used the BPM to explain innovation adoption and diffusion. He has attempted to link the BPM with the DoI (Rogers, 2003), and matches the BPM Operant Classes of Consumer Behaviour with the DoI's adoption categories, inferring that different user categories are subject to different contingency patterns.

Initiators, who hold a degree of wealth and are typically knowledgeable and experienced in usage, are subject to both high utilitarian and information reinforcement, and are therefore matched to the *accomplishment class*. Apart from utility, *initiators* also gain status and prestige conferred by observers who might not as yet have the resources or expertise to adopt and use. *Earlier* and *later adopters*, which constitute the majority of the population, are guided by contingencies that maintain lifestyle and which are mostly marked by utility.

Foxall(2007a) suggests that *early adopters* match the *hedonism class* since these are not leaders and therefore, are not reinforced by *informational reinforcement*. They are mainly interested in deriving functional utility and are very cautious and hesitant to try out new things. *Later adopters*, matched to the *Accumulation class*, are presented as pursuing behaviour only when it becomes economically essential. He suggests that behaviour is contingent with aversive *informational reinforcement* as failures to adhere to norms may entail negative social consequences.

Foxall(2007a) also proposes that the last to adopt, the *laggards*, are subject to aversive forms of reinforcement as nonconformity entails negative functional and status consequences.. The behaviour of *laggards*, matched to the *Maintenance class*, is exclusively aimed at avoiding or mitigating utilitarian and social consequences. Their behaviour is routine, mandatory and offers no flexibility.

Initiators	**Accomplishment**	Discontinuous products	First 16% of adopters
Earlier Adopters	**Hedonism**	Dynamically continuous products	Next 34% of adopters
Later Adopters	**Accumulation**	Continuous products	Next 34% of adopters
Last Adopters	**Maintenance**	Ubiquitous Products	Last 16% of adopters

Source: Foxall(2007a, p. 193)

Figure 3.4 - Adopter categories by *pattern of reinforcement* and product type

Foxall(2007a) further suggests that the four operant classes of consumer behaviour can be matched with different product types. Discontinuous products, new-to-the world products that perform novel functions, align to the *accomplishment class,* since these entail high risk and learning and thus require a level of wealth and expertise. Together with high utilitarian enforcement gained through early adoption, these will also offer high informational reinforcement through high social visibility and the prestige conferred. At the other extreme, ubiquitous products are aligned to the *Maintenance class*. Products become ubiquitous when they become mainstream, accessible and a necessity. Such products provide no *'relative advantage'* and do not cause *utilitarian* or *informational reinforcement*. The user will nevertheless try to avoid functional and social consequences by conforming and adopting.

Mainstream users, the 68% of the market, will seek dynamically-continuous and continuous products. Dynamically-continuous products, pursued by early adopters, are marked by falling prices, are more accessible, and tend to be less complex. They offer high levels functionality as network effect increases, but also act to confirm the status of the buyer. This category of product is matched to the *Hedonism class* since behaviour is reinforced principally by utilitarian reinforcement. Foxall(2007a) argues that when the product starts to approach the last phases of its cycle, more suppliers enter the market and new minor improvements emerge to allow for distinctions between brands. This product category is aligned to the *accumulation class,* as users will avoid the relative utilitarian disadvantages of the old product, but most importantly to avoid the low status associated with being seen by observers retaining outmoded practice.

3.4.3 BPM-I

Foxall(2007a), whilst remaining within a scientific radical behaviourist position, argues that a strict operant explanation that is kept restricted to an extensional idiom is limiting and incomplete. He claims that whilst in many cases behaviour results from external stimuli (stimuli in the environment), this relationship is weaker in post adoption habitual behaviour. Such behaviours are very difficult to capture and explore when similar patterns of contingencies persist or when changes in contingencies cause changes in habitual behaviour. It is not possible to explore usage intensity or discontinuation of an online social network, like Facebook, by just regarding external stimuli. One must take account of intentional language, such as enjoyment, curiosity, jealousy, and boredom, for a complete understanding of such behaviour to emerge.

As outlined in the previous chapter, the literature identifies a number of user traits that are independent from the external environment but which influence behaviour. Examples include behavioural control (Chen et al., 2007), self-efficacy (Chen et al., 2009; Hsu and Chiu, 2004) and innovativeness (Zarmpou et al., 2012). Users, when presented with similar stimuli and contexts, may still behave differently because of such traits. This understanding might indicate why different adopter categories form, some become opinion leaders and others imitators. In the BPM, these differences are explainable in part by the *learning history*, as learned consequences of prior experiences and rules from verbal behaviour. *Motivating operations* (Fagerstrøm and Arntzen, 2013; Michael, 1982) and genetic histories (Skinner, 1976) are also considered as contributing to such differences.

At present there are no means of capturing and exploring inner influences outlined above other than indirectly through verbal behaviour. Foxall (2007a) advocates that whilst behaviour can be described as an operant process, a complete explanation can only emerge if this is extended to account for intentional terms that feature emotions and beliefs. Such a view does not conflict with Skinner's position (1976) who viewed what happened '*within the skin*' as an important aspect of behaviour that also needed to be treated with scientific caution.

Up to this point, BPM has been presented as an extensional model that excludes mental accounts such as feelings, desires or beliefs. In the BPM-I, Foxall (2013, 2007a, 2007b, 2007c) introduces intentionality aiming to make the model more relevant as an *interpretative device* in explaining consumer behaviour in wider consumers situations. This extension was made through two additions, namely: the inclusion of symbolic reinforcement, and the inclusion of intentional beliefs and desires represented within the *learning history*.

BPM-I does not represent consumer behaviour as a simple reactive operant behaviour. It allows for behaviour to be depicted as responsive to external stimuli through *symbolic reinforcement* – shaped by goal-directed action and mediated *symbolic reinforcement* (Foxall, 2013). *Symbolic reinforcement* is distinct from, and incommensurable to, *utilitarian reinforcement* and more importantly, *informational reinforcement*. Foxall proposes that symbolic reinforcement can be represented under

the four patterns of reinforcement namely *accomplishment*, *hedonism*, *accumulation* and *maintenance*, encountered in the BPM.

BPM-I permits the *consumer situation*, previously limited to the interaction between the *consumer behaviour setting* and the *learning history (the consumer situation*), to account for beliefs and desires. Such inclusion, based on the debate on internal states as discussed in the earlier parts of this chapter, enables a stronger explanation and interpretation of rule-governed behaviour. Moreover, through *symbolic reinforcement*, the *motivating operation* emerges as a central element within the *Consumer Behaviour Setting* allowing for the consideration of desires, or lack of, in interpreting behaviour.

BPM-I remains a relatively early research front. Nevertheless investigations into *symbolic reinforcement* and *motivating operations* has been achieved through the measurement of emotional correlates (Fagerstrøm, 2010; Foxall and Greenley, 1999; Soriano et al., 2002) and by applying the Pleasure Arousal Dominance(PAD) [1] emotional state model (Mehrabian, 1980; Russell and Mehrabian, 1977). According to Foxall, emotional feelings can be considered as the ultimate reinforcers of operant behaviour. However, he warns that feelings can only be ascribed to the individual on the basis of neuroscience and extensional explanation.

When research attempts to account for intentional language experimental lab investigations become difficult. Radical behaviourists argue that in such circumstances, where experimental analysis are not possible, then understanding from prior experimental analysis should be applied as an interpretative tool. This is how Skinner proceeded in developing Verbal Behaviour (1957a). He claimed that an interpretive approach can at best lead to '*plausible*' accounts devoid of any scientific certainty.

Foxall (2015) argued that Skinner's approach was too narrow. He argued that Skinner as evidenced in his work, based his insight on his prior animal experimental understanding and was mostly passive to the important developments achieved in other fields. He suggests that a more complete interpretation can be achieved if more

[1] PAD suggests that human emotion can be grouped in three distinct core emotions measurable through a standardised instrument. It has been applied successfully within the BPM framework and linked to contingencies (Foxall and Greenley, 1999; Soriano et al., 2002) and Motivating Operations (Wilson, 2014).

plurality is sought particularly from other fields such as behavioural economics and neuroscience.

3.5 Explanation at sub-personal level

The scope of this section is to briefly introduce some of the research fronts from which sub-personal insight relevant to this study and beyond can be located. This section does not aim to present an exhaustive understanding of respective fields. Rather, it aims to provide some understanding on the underlying causes that induce behaviour.

In the book 'The Selfish Gene', the influential evolutionary biologist Richard Dawkins (2006) outlines the evolutionary foundations of behaviour. Dawkins argues that an organism is expected to evolve to maximise its inclusive fitness and that the gene-centred view of evolution can be extended beyond the physiology to describing how animals behave. He applies his theory to explain altruistic and selfish behaviours to kin and otherwise. Most relevant to discussion, and seemingly fitting Skinner's view of behaviour, is his representation of operant learning – an evolved survival programme in the interest of genes:

> *"One way for genes to solve the problem of making predictions in rather unpredictable environments is to build in the capacity for learning. Here the programme may take the form of the following instructions to the survival machine 'Here is a list of things defined as rewarding: sweet taste in the mouth, orgasm, mild temperature, smiling child. And here is a list of nasty things: various sorts of pain, nausea, empty stomach, screaming child. If you should happen to do something which is followed by one of the nasty things, don't do it again, but on the other hand repeat anything which is followed by one of the nice things.'" (2006, p. 56)*

He further argues that such a simplistic strategy would be very effective at making the '*original programme*' simple whilst still enabling the organism to be very effective in adapting to change. Notwithstanding this, certain predictions must still be hardwired in the programme specifically when these appear to fundamentally and consistently favour the survival of the genes. This implies that in order to fully explain behaviour,

one must take account of the lowest level roots of behaviour, the phylogeny. *Evolutionary Psychology* (EP) and *neuroscience* art two disciplines that provide insight on this front.

In EP it is posited that the human brain, through evolution, has been programmed to solve adaptation problems encountered by Pleistocene humans (Saad, 2007; Tooby and Cosmides, 2005). This means that hardwired programmes in the brain do not reflect the fitness needs of today but those of hunter-gatherer communities. Such insight, although limited to plausible inferences, can potentially lead to causal explanation for much of the behaviours that may initially appear to contradict rational behaviour.

For example, EP offers an opportunity to hypothesise on gender differences, a topic often encountered in diffusion literature. An evolutionary perspective speculates that the sexual differences in the brain result from different needs between sexes that are shaped by evolutionary purposes in a hunter-gatherer context (Buss, 1995; Saad, 2007, 2004; Saad et al., 2005; Silverman et al., 2007; Tooby and Cosmides, 2005). Stenstrom et al. (2008) analysed sex differences in website preferences and navigation encountered in literature. They proposed three cognitive areas namely spatial, perceptual and verbal abilities that may explain and predict sex differences. These differences may demonstrate that the sexual differences may find their basis in distant human ancestors and the hunter-gatherer relationship at the time (Alexander, 2003; Ecuyer-Dab and Robert, 2004; Stenstrom et al., 2008). In view of such findings Stenstrom et al. (2008) argue that technology (websites in their research case) needs to be built in a ways to suit the diversity in the target, whether male or female.

Like verbal behaviour, tool use is also one of the key distinctions that elevate human behaviour from other organisms. Hansell and Ruxton(2008, p. 73) define tools as an object that *"must not be part of the animal itself, nor be attached to the environment; and be manipulated to achieve some beneficial outcome."* Tool use in nature is nevertheless rare primarily because "*there are few ecological contexts in which tools are superior to the already evolved anatomy of the animal*"(2008, p. 76). This claim is substantiated through examples of the tool use behaviour within different bird species where use is only related to the survival needs of the bird and not to its intelligence capacity. Tool use in nature appears in instances where physiology does not provide an adequate solution to an environmental problem. Instances are seldom and not

necessarily show a sign of species intelligence (Hansell and Ruxton, 2008). Humans, in contrast, have an innate capacity to produce and manipulate tools.

Neuroscience offers an opportunity to explore the human brain engaging with tools. For example, functional imaging of the brain manipulating Oldowan tool making (Stout and Chaminade, 2012, 2007) showed that the brain used both primitive and derived parietofrontal perceptual-motor systems. These parts of the brain deal with the representation of central visual field and the perception of three-dimensional forms. Functional imaging also exposed that no activity took place in the prefrontal executive cortices, cortices associated with strategic planning of complex cognitive behaviours – the domain-general problem solving part of the brain. Such insight indicates that humans have an innate developed capacity for the construction and use of tools.

Moreover, neuroscience research also suggests that behaviours related to language, gesture and tool use share anatomical functional overlaps linking motor control of manipulation and articulation. Such insight points to an evolutionary link between language and tool use (Stout and Chaminade, 2012). Such explanation can be the result of exaptations. These consist of evolutionary adaptations that shift the original function of a part of the body or the brain as a result of an environmental change (Kock et al., 2008). For example, the morphology of the hand has adapted by natural selection to suit the tree grasping needs of tree-dwelling ancestors. Evolution, through exaptation, might have changed previous unrelated parts to provide human's with an ability to manipulate tools.

Furthermore, it could be argued that present day technology and applications do not tally with the context and needs the brain evolved to solve. This could explain why users often have difficulty and require learning effort to be able to efficiently master today's technologies. In fact, metaphors that evoke primitive cues are often used to mask technological complexities and to make technologies and related processes more familiar and easier to master. Such relationship is also encountered in marketing. The use of metaphors are consistently found applied in marketing linking products and services to kin selection, status, and reproduction to mention but a few (see Cary, 2000).

Over the past years, the development of *Functional Magnetic Resonance Imaging*, or functional imaging, has enabled neuroscientist to explain how parts of the brain contribute in synchrony to produce what from outside looks as coherent behaviour. Functional imaging provides an opportunity to scientifically observe brain activity for verbal, internal and manifest behaviour in experimental conditions. Emotions and pleasure can be expressed in chemical and biological terms whilst reason can be mapped to parts of the brains and the way these are wired (Foxall et al., 2012). Nevertheless the usage of such technology alone is limited unless reference to behavioural histories and environments can be made (Catania, 2013). FMRI has no strength in linking the observed biology phenomena with learning history, the consumer's experience, and the consumer social context.

The research literature (Edmund T Rolls, 2013) represents the brain as a myriad of complex and distinct neural systems each dedicated to fulfilling unique functions and interacting with the emission of molar behaviour. A simplistic description of the core neural circuitries within the brain relevant to ICT adoption and use may be represented as:

i) the frontal cortices that are associated with strategic thinking;

ii) the left dominant hemisphere areas associated with language and tool manipulation (see Stout and Chaminade, 2012); and

iii) the limbic structure, the most primitive structure, associated with emotions, instincts and mood, and where the hippocampus within linked to episodic memory, imagination and projecting into the future (see Mullally and Maguire, 2014).

Literature further shows that an all-encompassing limbic system responsible for all emotion, as mostly held to date, is questioned by new evidence that supports two distinct circuitries for episodic memory and *internal states* (emotion). Basing on an extensive review of research undertaken over the past two decades, Rolls(2015) suggests that the anterior limbic system and related structures, including the orbito frontal cortex and the amygdala are involved in the generation of emotion, reward valuation and reward-related decision making. However, independently and using a different *'computational system'*, the hippocampus and connected limbic structures are involved in triggering episodic or event memory.

This insight thus distinguishes between two systems one that deals with emotion, and another with the initiation of memory. Both systems operate independently,

differently, and yet both influence the emission of behaviour. This distinction resonates with the proposal of a distinct *learning history* and an *internal state* as represented in BPM-I.

3.6 Chapter conclusions

This chapter has presented the Literature on *radical behaviourism* and the CBA programme as an alternative perspective to explaining behaviour. The BPM was introduced as an interpretative tool that makes a distinction between utilitarian and informational forms of reinforcement. Verbal behaviour, as a distinct form of operant behaviour, was explored particularly in the context of ICT applications. A discussion followed on the way *radical behaviourism* treats private events and intentionality introducing and outlining BPM-I and *symbolic reinforcement*. EP and neuroscience were briefly introduced as explanation at the sub-personal level. The next chapter, whilst proposing a methodology, explores *radical behaviourism* as a philosophy of science.

4 An inductive approach

> *"Every scientific field has a boundary beyond which discussion, though necessary, cannot be precise as one would wish." (Skinner, 1976, p. 21)*

This chapter outlines the philosophical foundations of this study and the choice of method pursued. It commences by outlining and justifying the choice of a post-positivist worldview and the compatibility of Skinner's *radical behaviourism* with the inductive orientation of this study. Glaserian Grounded Theory (GTM) is then introduced as an adequate and rigorous methodology. The chapter further proceeds by outlining the methodology, introducing the substantive area in focus and outlining the iterative phases of the data collection and analysis.

4.1 A post-positivist worldview

Durkheim asserted that "*social phenomena are things and ought to be studied as things*" (1938, p. 27). Durkheim's positivism viewed social science as an organised method for combining deductive logic, with precise empirical observations of individual behaviour, in order to discover and confirm a set of probabilistic causal laws that can be used to predict general patterns of human activity (Neuman, 2000, p. 66). Within the positivist objective view, based on Neuman's (2000, p. 68) description of a scientific explanation, knowledge must (i)have no logical contradiction, (ii)be consistent with other facts, and (iii)can be replicated. Derksen et al. (1992, p. 1714) further claimed that "*scientific explanation involves the accurate and precise measurement of phenomena*", adding that being objective means that insight cannot rely on values, opinions, attitudes, or beliefs.

Considered as evolved thinking from positivism, post-positivism challenges the traditional notion of the absolute truth as no one can be entirely 'positive' on the observed behaviours and actions of humans (Creswell, 2009; Phillips and Burbules, 2000). This research falls in this paradigm as it attempts to preserve a deterministic philosophy of seeking to explain the cause behind a phenomenon. This study, therefore, adopts a reductionist approach as it aims to simplify ideas into discrete observable factors that can be measured within the world '*out there*' (Creswell, 2009).

A scientific positivist study typically assumes a quantitative means of observation to preserve the maximum possible objectivity as positivist assumptions hold true more for quantitative methods than for qualitative research (Creswell, 2009). This study deviates from the norm as it pursues an inductive qualitative orientation. However, it retains an objective orientation as it assumes that there are scientific laws and theories that govern the world that have to be discovered and tested.

This study will adopt the key assumptions proposed by Phillips and Burbules(2000), and as further summarised and grouped by Creswell(2009). These are presented below:

i. **Knowledge is conjectural and absolute truth can never be found.** This tenet is at the very centre of this research where the effort is not to confirm an absolute truth but to find forms of evidence that would objectively support the theory, or failure to find evidence that rejects it.

ii. **Research is the process of making claims, and then refining or abandoning some of them for other claims that are more strongly warranted.** The research question emerges from theory gaps discussed and explored in the earlier parts. In the process of data collection and analysis, new theories will emerge as new claims will be made on additional theoretic fronts.

iii. **Data, evidence and rational considerations shape knowledge.** In this study, data are collected in the form of verbal accounts of person's own behaviour and observed behaviours of others. These data are analysed systematically and objectively for new theory to emerge.

iv. **Research seeks to develop relevant, true statements.** This study aims at exposing causality and extant understanding that can be potentially applied to describe wider contexts.

v. **Objectivity is essential for competent inquiry.** Whilst the nature of the data collected is of a qualitative nature, it attempts to retain the methodological

rigour throughout collection, analysis and interpretation to ensure that discovered theory is objective.

Sir Karl Popper (1934), a key philosophical contributor in the post-positivist debate, and as outlined by Neuman (2000, p. 69), claimed that knowledge "*can never be proven or fully justified*" but "*can only be refused*". He argued that the only scientific conclusion that can be drawn is a failure to locate any evidence that negates a theory (falsification). Research must not only locate facts that support theory, but more importantly, locate evidence that contradicts it.

4.1.1 Induction

Silva (2007) questions whether research in the realm of TAM can be considered scientific, as despite the vastness of work encountered, it is mostly concerned about verifying its core tenants and additions (Bagozzi, 2007; Ortiz de Guinea and Markus, 2009; Silva, 2007). As outlined in the Chapter 1, TAM falls short from being generalisable beyond certain contexts. Bagozzi(2007), for example, challenges two key assumptions namely the intention-behaviour linkage, and the linkage between attitudes and intentions. Silva (2007) advocates that progress in the field can only be achieved if research was to pursue phenomena that practitioners and researchers have so far failed to address. This study proposes an inductive inquiry to address the lack of understanding on ICT adoption and use in consumer open contexts.

In deductive logic, a theory about a topic of interest is narrowed into specific hypotheses that can be tested. Data are used to test hypotheses leading to their confirmation or rejection. In inductive logic, theorisation becomes the end point by moving from specific observations to broader generalizations and theories. Data are captured first followed by the analysis that leads to the detection of patterns and regularities and the formulation of tentative hypotheses or conclusions. In an inductive approach, robust evidence is sought based on which conclusions are inferred. This does not mean that absolute proof is achieved or sought. Although inductive strategies are mostly encountered in interpretivist research, the strategy is equally relevant and important for post-positivist inquiry.

Lakatos(1978) held that theory could be considered scientific even without any evidence, and non-scientific, or pseudo-scientific, even if all evidence shows in its

favour. He argued that the scientific criterion must be applied to a whole research programme, made of theories successively building and replacing each other, and not to an isolated hypothesis or theory. He further claimed that research programmes can be degenerative or progressive. Degenerative research is composed of a hard core of assumptions protected by a protective belt of auxiliary hypotheses that can be tested, and where theory is fabricated to accommodate known facts. In progressive research programmes, theory is devised to expose novel facts and new predictions that can be confirmed. Scientific progress, he claims, is only possible if each new theory that is developed through the research programme has a larger 'empirical content' than its predecessor. This position resonates with the concerns expressed by Bagozzi as one of the original contributors to the origins of TAM, in noting the lack of development in the field.

> *"I am not sure, but I get the sense that little methodological pluralism exists in the IS area and that most phenomena have been studied by multiple regression or PLS. It is no wonder then that theories and knowledge evolve so narrowly in field, and coupled with the inevitable conflicts... we see a reluctance to discard that which has grown stale, to borrow knowledge from other areas, and to be open to new ideas within our own fields" (2007, p. 252).*

This is further supported by Silva (2007) who notes that the IS researcher, when confronted with anomalies, has always put forward revisions of the instruments by adding new hypothesis and constructs but seldom question the core. This study is intended to question the core assumptions on which the main adoption theories have been built. Skinnerian *radical behaviourism* is assumed in this study as a philosophy of science and as an interpretative theoretic understanding for behaviour.

4.1.2 Radical behaviourism as philosophy of science

Skinner(1957b, 1950), despite his strict scientific position, was a strong advocate of inductive inquiry. He objected to the hypothetico-deductive method of inquiry that was widely employed in the research of learning within the comparative psychology at that time. He argued that theory, plausible yet conjectural, can cause research to be blindfolded and hence force inquiry to give expected answers in place of novel

understanding induced by further study. He complained that the learning theory being developed at the time was not suggesting appropriate research, but rather creating a false sense of security and satisfaction with the status quo.

> *"That a theory generates research does not prove its value unless the research is valuable. Much useless experimentation results from theories, and much energy and skill are absorbed by them. Most theories are eventually overthrown, and the greater part of the associated research is discarded. This could be justified if it were true that productive research requires a theory, as is, of course, often claimed. It is argued that research would be aimless and disorganized without a theory to guide it. The view is supported by psychological texts that take their cue from the logicians rather than empirical science and describe thinking as necessarily involving stages of hypothesis, deduction, experimental test, and confirmation. But this is not the way most scientists actually work. It is possible to design significant experiments for other reasons and the possibility to be examined is that such research will lead more directly to the kind of information that a science usually accumulates" (Skinner, 1950, p. 194)* .

Radical behaviourism, therefore, distinguishes itself by its descriptive, observational, and integrative system of inductively derived principles that strongly contrast with theory-driven, hypothetico-deductively derived, statistically based principles found in other forms of experimental psychology (Chiesa, 1992). Skinner's view was that inquiry had to be built on empiric observations of measurable behaviours – therefore in the form of data-driven examination.

The development of operant conditioning as a scientific programme is testament to such inductive approach. Skinner's *radical behaviourism* can be seen as an opportunity to break from the dominant theory in the field whilst preserving a rigorous scientific line of inquiry. By rejecting the use of a hypothetico-deductive strategy, this study gains the opportunity to do away from the intention-behaviour link, and to account for feelings and attitudes from a new perspective. Furthermore, through induction and by departing from existing theory, the study questions what users

maximise in adoption and use situations. To clarify, this study is exclusively focused on user behaviour and not mental states or forms of self-awareness.

Despite that this study is anchored to Skinner's inductive stance, it deviates in the methodology pursued. Whilst retaining the importance of objectivity and basing on data collected empirically through observations, it uses a qualitative method. This deviates from the quantitative methods typically encountered in behaviourist study. Such deviation is based on the following core points:

- This study is presented as part of a progressive programme, and must be considered as an initial inquiry that locates and explores variables to be tested in future study.

- The topic investigated is complex and data is sought from a natural setting that features strong social influences. The environment and behaviours observed are dense as many factors interact and shape behaviour. The researcher considers that attempts to assert relationships at present can result into theory forcing.

- This study aims to elicit and observe any behaviour influencing adoption and use. This involves accounting for verbal behaviour with proper inclusion of intentional language. Such view is considered compatible with Skinner's verbal behaviour (1957a), and particularly with his later views on thinking, knowing and motivation (1976). In dealing with feelings and beliefs, the study assumes Foxall's *intentional behaviourism* (Foxall, 2013, 2007b) introduced earlier.

- From a professional dimension, the strategy and method pursued is in itself a potential contribution to practice and theory as it offers an alternative way to account for user feelings and beliefs in adoption and use contexts without relying on intention-behaviour assumption amongst other biases.

In view of the above points, this method deviates from other CBA projects. Research forming part of this programme usually builds and extends the BPM to new contexts and frontiers such as emotion and motivating operations as examples. The researcher considers that by dedicating all effort on an early inductive investigation where the tenets of CBA are used as an interpretative tool, this study can yield a stronger

contribution to both theory and practice. Future research can use theory generated from this study to test relationships particularly by testing or extending Foxall's proposed relationships between the BPM and the DoI diffusion curve (2007a, 1994).

The main challenge in pursuing an inductive strategy within a post-positivist worldview is locating a research methodology that fulfils the research objectives whilst being compatible with the philosophical worldview described above. Such requirement is not based on the superiority of one worldview over another, but rather, because any theory fragment emanating from the study must bear the same philosophical underpinning as the knowledge gap located through literature as outlined in the earlier parts. Failure to maintain a common worldview throughout the data collection, analysis, discussion and presentation of conclusions risks exposing the study to fundamental confusion and an incompatibility to link findings with theory.

Therefore, as part of a progressive programme, and in opting for an inductive method, Classical Grounded Theory Method (GTM) was chosen. GTM presents a research opportunity when no explicit hypothesis exists to be tested or when existent hypotheses *"are too abstract to be tested in a logical and deductive manner"*(Martin and Turner, 1986).

4.2 Grounded Theory Method

GTM was first proposed by Barney Glaser and Anselm Strauss in their book 'The Discovery of Grounded Theory' (1967). The book presented an innovative research methodology, primarily qualitative, for facilitating "*the discovery of theory from data*" (Glaser and Strauss, 1967, p. 1) and focused on providing a detailed description of the principles and procedures for developing qualitatively derived theory. Glaser and Strauss wanted to challenge the approach and assumption that theories must be generated a priori of actual data collection. Rather they advocated a method that could instead generate theory from data obtained in the 'real' world.

GTM is a systematic inductive methodology which operates almost in an opposite manner to traditional social science research. Data are collected through a variety of methods and systematically coded and grouped whilst categories are formed as basis for the creation of a theory. Reference to Literature is only encouraged towards the later parts of the research after all data has been gathered to retain objectivity and

creativity. Thus, the emerging theoretical account enables the researcher to ask questions about the similarities and differences between the emerging theory and other more general theories in the field. Such an exercise provides an opportunity to expose and explore the elements that may be relevant or applicable in a wider context. The method can also serve to enrich available understanding through the grounded theory lens (Martin and Turner, 1986).

GTM was devised and proposed as a reaction of extreme positivism (Suddaby, 2006) at a time when research was dominated by positivist rigid quantitative methods. Qualitative theory, which appeared to lack rigorous systematic methods, attracted huge criticism from quantitative thinkers as they did not consider its methods as scientific and rigorous (Dunne, 2011). In such context, Glacer and Strauss felt that research was limiting itself to just the verification of existing theory, whilst no effort and creativity was being dedicated for the generation of new theory (Bryant, 2002a). In essence, the method is not intended to test hypotheses that have been built on existing theories. Instead, it aims at discovering new *'theory'* grounded in empirical data that are collected in the field (Glaser and Strauss, 1967). GTM relies on unique methods including continuous comparative analysis and theoretical sampling. The method is substantially different from other research methodologies as it requires that data collection and analysis occur simultaneously through constant comparison (Glaser and Strauss, 1967).

Theory is described by Strauss and Corbin as a set of "*well-developed categories (e.g., themes, concepts) that are systematically interrelated through statements of relationship to form a theoretical framework that explains some relevant social, psychological, educational, nursing, or other phenomenon"*(1998, p. 22). Unlike in other qualitative methodologies, such as ethnography and phenomenology, grounded theory aims at discovering theory that is much more than *"thick description"*. They argue that theory emerges from relationship that explain *"who, what, when, where, why, how, and with what consequences an event occurs"* (1998, p. 22). In Strauss & Corbin perspective, theorising is seen as *"the act of constructing from data an explanatory scheme that systematically integrates various concepts through statements of relationship",* adding that theory *"does more than provide understanding or paint a vivid picture; it enables users to explain and predict events, thereby providing guides to action"* (Strauss and Corbin, 1998, p. 25) .

The original guidelines penned by Glaser and Strauss prescribe that theory should: i) enable the prediction and explanation of behaviour; ii) be useful in theoretical advances in sociology; iii) be applicable in practice; iv) provide a perspective on behaviour; v) guide and provide a style for research on particular areas of behaviour; and vi) also provide clear enough categories and hypotheses so that crucial ones can be verified in present and future research (Glaser and Strauss, 1967, p. 3). These six guidelines, despite describing a qualitative approach, provide a fairly succinct summary of a scientist or positivist position (Bryant, 2009, 2002a; Kelle, 2005; Urquhart, 2000).

Yet, despite this positioning, there are some fundamental deviations that might contrast the positivist paradigm mostly because of the notion of objectivity within a positivist yet inductive context.

i. Being an inductive method, from the outset, Strauss and Corbin rejected both notions of falsification (discussed above), and hypothesis testing. Instead, they described GTM as an "*organic process of theory emergence based on how well data fit conceptual categories identified by an observer, by how well the categories explain or predict ongoing interpretations, and by how relevant the categories are to the core issues being observed"* (Suddaby, 2006, p. 634). Thus, they offered a middle ground between empiricism and complete relativism through a methodology that addresses the interpretive realities of actors in social settings (Suddaby, 2006).

   The positioning on the paradigm spectrum gives rise to confusion amongst users of the methodology and attracts strong critique and rejection from certain scholar quarters. As outlined earlier, this study aligns to a demarcation philosophy as proposed by Lakatos(1978) introduced above.

ii. Secondly, grounded theory requires *theoretic sensitivity*, meaning the ability to "*see relevant data*", therefore, recognize what is important in data and to give it meaning (Glaser and Strauss, 1967). Such a stance would radically challenge the positivist way of conducting objective research on at least two fronts, namely the role of the researcher in the research process, and the use of literature.

Whilst in deductive research the researcher is expected to remain distant from the inquiry so as to minimise interference, contamination and bias, in GTM such assumption is not so firmly held. The researcher is expected to be an active element of the research process which includes a creative component (Suddaby, 2006). The researcher must make arbitrary key decisions on the categories to focus on, where to seek data, and in making sense of emergent theory from data. Glaser argued that a detailed literature review conducted at the outset may 'contaminate' the data collection, analysis and theory development as the researcher is conditioned by existing theories and hypotheses, undermining his focus, authenticity and quality of research (Dunne, 2011).

4.2.1 A classical approach

Before proceeding further with explaining the tenets of GTM, and how they deal with the above identified aspects, a brief overview is presented of how GTM evolved since its inception. This section is important as it clarifies and justifies the version of GTM that is pursued in this study.

Despite their common objectives, Glaser and Strauss came from a different contrasting scholar background. Strauss came from the Chicago School of Social Research, which was particularly focused on qualitative research methods influenced by the work of John Dewey and G.H. Mead. Glaser had worked at the Columbia University which places strong emphasis on empirical research through innovative ways in using quantitative methods (see Bryant, 2002; Heath & Cowley, 2004; A. L. Strauss & Corbin, 1998; Urquhart, 2013). Despite working jointly on the development of GTM, their divergence became more apparent when Strauss, jointly with Corbin (1990), developed a highly complex system of coding, designed to systematically guide the researcher through every stage of the research.

Glaser, who is considered to have remained faithful to classic grounded theory (Heath and Cowley, 2004; Urquhart, 2013), rejected the guide by Strauss and Corbin, claiming that it no longer respected GTM fundamentals as its rigidity hindered and conditioned theory emergence (Urquhart, 2000). Glaser, on his part, also extended GTM by attempting to put more clarity on concepts such as theoretical sampling, theoretical coding, and theoretical memos. This split yielded two styles of grounded theory, namely the Straussian and Glaserian paradigms, the first places focus on induction,

emergence and creativity of the researcher, whilst the latter adopts an abductive[2] approach through a more structured and systematic method with strict validation criteria.

A later constructivist version of GTM emerged through the work of Charmaz(2006). Charmaz proposed that constructivist GTM can position between postmodernism and positivism. She proposes that meanings do not lie dormant within objects waiting to be discovered, but rather, these are created through interaction between humans. Her version of GTM "*assumes the relativism of multiple social realities, recognises the mutual creation of knowledge by the viewer and viewed, and aims toward an interpretive understanding of subjects' meanings*" (2006, p. 250).

These three main versions of GTM, amongst others less dominant, have led to a degree of confusion as GTM is often misunderstood, misused or even abused. In some instances, GTM is often regarded as an umbrella term for studies that lack proper rigour or are methodologically confused. Such confusion accompanied by a lack of good quality research or misconceptions of the method often attract critique and rejection (Bryant, 2002a; Urquhart, 2000; Urquhart et al., 2010). Suddaby(2006), on the other hand, warns against an element of fundamentalism with purists against pragmatists. She argues against rigid rules on saturation (explained later), mechanical application of technique to data, and clear demarcation between theory and data as GTM is anything but dogmatism.

Urquhart et al. (2010) argue that irrespective of worldview location, GTM is bottom-line about theory emergence and no study can claim to follow GTM unless it delves into abstraction and theory discovery. Hence GTM, in all its versions and philosophical locations cannot serve simply as a method to investigate a phenomenon without leading to an attempt to yield new theorisation. GTM is not merely one method located in one philosophical location, but is rather an evolving method that can lend itself to theory formulation in diverse disciplines and across diverse worldviews.

Urquhart (2013)argues that anyone undergoing research in GTM must ensure that the research is based on a solid philosophical foundation that matches the worldview

[2]Data sampling, data analysis and theory development are not seen as distinct and disjunct, but as different steps to be repeated until phenomenon that is to be researched can be described and explained (Charmaz, 2006).

adopted by the researcher. As a result, not all the above identified versions of grounded theory can fit the methodological requirements of this study and its line of research inquiry. Whilst the relatively novel and popular constructivist GTM may appear to overcome some of the philosophical inconsistencies by negating a belief that there is an objective truth (see Bryant, 2002, 2009), it is clearly in direct conflict with the post-positivist worldview of this thesis. A constructivist perspective is therefore considered not compatible and is avoided.

In retaining an inductive approach that espouses with the philosophical position of Lakatos(1978), Glaserian Classical GTM has been adopted. Straussarian GTM is avoided since a focus on verifying outcome of the study, despite a positivist trait, goes against the core inductive objective of the study. Classical GTM is adopted for its flexibility and its ability to enable theory to emerge, something which Straussarian GTM limits by its abductive approach (Seidel and Urquhart, 2013).

In adopting the Classical method, this thesis follows GTM as described by Cathy Urquhart (2013) and other work by her (Urquhart, 2000; Urquhart et al., 2010; Urquhart and Fernandez, 2006). The choice of method is based on the following arguments:

i. Unlike Bryant, amongst others, classical GTM can be located across the whole paradigm spectrum including a positivist stance (Bryant, 2002a, 2002b; Urquhart, 2002). In the context of information system (IS)research (Bryant, 2002a) considers that the positivist position in the origins of GTM is fundamentally problematic, and it can only serve for legitimate rigorous research if it manages to break free from such notions. He claims that Glaser's assertions that classic grounded theory is epistemologically and ontologically neutral makes grounded theory non-committal, naive and as perpetuating an "epistemological fairytale" (Bryant, 2009). Bryant claims that Charmaz's constructivist approach to grounded theory provides solid foundation for research in the IS field.

   In contrast, Urquhart et al. (2010) argue that as a research method, grounded theory can indeed retain independence from an underlying epistemology. They claim that the method has been adopted successfully in both positivist studies, as well as other pragmatic interpretivist extremes, arguing that grounded

theory is suitable to be applied to studies located across the entire pragmatic spectrum. However, they add that a researcher's own ontological and epistemological position will condition the way coding and analysis of data is approached.

Hence, the application of GTM for this research project is considered legitimate as long as a clear worldview is identified from the start, and that this is maintained consistently throughout. Urquhart however qualifies that in a positivist study, the researcher must show that interpretations made are not subjective, thus the view of one single person (Urquhart, 2013, p. 60).

ii. Classical GTM is not a purist or dogmatic view. A flexible application of GTM should be accompanied with a strict commitment to its theoretic foundations. Urquhart et al. maintains that GTM is about theory emergence and research that does not lead to new theory is not GTM (2010). This is essential for the purposes of this study since, as described in point i. above, a study positioned in positivist paradigm might need different approaches than if otherwise it was located on the constructivist side.

From this point onwards, the term GTM will refer to Classical GTM.

4.2.2 Theory emergence and generalisability

Urquhart(2013) argues that GTM generalisability must be approached with caution due to its qualitative inquiry. She quotes Yin (2009) who argued that results "*generalise to a theory, not a population*". By adopting GTM this study does not yield results that can be confidently generalised to wider populations such as in the case of TAM and DoI. This study aspires to make a contribution through new theoretic fragments that may lead to generalisable inferences that informs practice and feed into future inquiry. However, one can question the extent to which findings may be generalised to theory. Will theory generated be solely generalisable to the specific context, technology and population investigated? To answer this question one must understand how theory is treated and built in GTM, and how the theory generated in this study fits within such structure.

Urquhart at al. (2010) suggest three levels of theory, namely seed theory, substantive theory and formal theory, each with a different level of generalisability. This study will produce substantive theory with insights on the formal front. A GTM inquiry commences through a seed concept that primarily consists of an early *'hunch'* with little, if any, empirical grounding, but which directs the researcher to an area of enquiry within a defined topic. This study is guided by the observation that non-utility factors are strong influencers in consumer technology adoption and use. Such observations are noted in literature, as presented in Chapter 2, but a clear cohesive and parsimonious representation of the interaction between such factors appears to be still missing. Whilst a seed concept can be completely detached from literature, in this study the topic was researched in advance and the literature gap was identified before the choice of method.

GTM, due to its meticulous approach of treating data, produces very dense descriptive accounts of what is happening in the substantive area of inquiry. Therefore, any description produced may at best be generalisable to theory that can be applied to investigate social network and smartphone adoption and use amongst Maltese young adults. Such narrow theory development falls short from yielding a relevant contribution to the field.

GTM requires that the researcher goes beyond simply describing the observed phenomena and dig deep beyond the description. The researcher must abstract in order to facilitate the emergence of theory that is independent of, and beyond the analysed data and the specific phenomena observed (Glaser and Strauss, 1967). Hence, in GTM the researcher must be able to engage with data in order to emerge tentative theorisation to explain causalities behind why users might be behaving in certain ways. Such theorisations must emerge from data being analysed and not as result of influence from available literature or theory.

GTM yields dense micro theory, substantive theory, that has broader application than the specific context of investigation, but which is still limited in the extent to which it can be applied (Urquhart et al., 2010). To ensure that contribution moves beyond the substantive level, whilst also addressing the initial 'hunch' outlined above, theory emergent from this study needs to be contrasted and complemented with the broader understanding in the field of inquiry. This would yield a contribution at the formal level.

In GTM *formal theories* are the highest level of abstraction and focus on high-level conceptual entities. As the researcher abstracts to higher levels, the range and scope of the theory increases (Urquhart et al., 2010). According to Glaser (1998), the level of 'formality' refers to how well the theory: (i) focuses only on general categories and hypotheses; (ii) presents conceptualisations that are highly generalisable for practical application across a number of contexts; and (iii) has been developed to generalise a core category emergent from a substantive grounding.

4.2.3 Objectivity

In a systematic review of published studies using GTM in ICT consumer behaviour contexts, Valvi et al., (2013) claimed that GTM is often abused when theory emerges not from data but from preconceived, logically deduced hypotheses. Similar concerns are echoed in the wider application of GTM by Goulding (2001) who argues that much research builds on positivist assumptions that emerge from literature, and then proceed to support or even confirm such proposition. Such approach lacks objectivity and misses out on the true potential of GTM and induction.

Previous literature and the researcher's experiences and biases are central to the objectivity of research using GTM. Termed as *theoretical sensitivity* in GTM (Glaser, 1998) a balance must be sought to ensure that theory that emerges is solely grounded in data, whilst abstraction at the higher levels intertwines with both existent literature and the researcher's experiences and bias. How literature and the researcher's experiences and biases contribute to this study is clarified in the following points.

i. **The researcher – experiences and bias**: It is untrue that the researcher is expected to enter GTM with a blank mind. Urquhart & Fernandez(2006) claim that this is a misconception resulting from superficial reading of GTM literature. It would be unreasonable for a researcher to enter a field of study with no knowledge of theory or developments, and it is highly unlikely that a researcher has no personal experience or bias. Glaser (1998), in fact argues that the method does not imply that the researcher assumes 'naive' objectivity, but rather, through the rigorous application of the method, the researcher is able to identify and account for their biases. Goulding (2001) further stresses that grounded theory is not a-theoretical as the researcher must immerse in the

method. However, GTM necessitates an open mind and a willingness to have '*faith'* in the data and what emerges.

ii. **Literature:** Glaser's strongly holds that a literature review in the substantive area and related areas should only be done when the study is nearly completed, *"accomplished and woven into the theory as more data for constant comparison"* (1998, p. 67).

Hence, in GTM, known theories are not ignored but set aside for potential future comparison. Reference to theory is only made if the analysis of the data warrants the relevance of such theories. Such position is common and central across all versions of GTM (Urquhart and Fernandez, 2006). Such a view fits within the distinction between substantive and formal theorisations described earlier. In keeping with GTM's dicta(Dunne, 2011), the literature presented in the earlier chapters has been in part researched beforehand so as to define the research gaps addressed and to frame the substantive area. Further literature was later added as felt warranted complementing and strengthening theory emergence, discussion and rigor in the process of theory emergence.

4.3 The substantive focus

This section introduces the substantive focus of this study therefore the choice of technologies population and contexts explored. In a GTM inductive research, the substantive focus needs to be narrow enough to allow for a manageable and focused study to take place and for insight to emerge. The focus must also be broad enough to allow for scale up and abstraction. If the focus is too narrow, the study may yield very dense description with little opportunity to produce relevant formal theory. If the focus is too broad, then detail is too thin with limited opportunity to draw inferences and objectively scale to formal theory. This study explores the adoption and use of smartphones and online social networks by young Maltese adults.

4.3.1 Technology

This study is focused on the adoption and use of two technologies within a natural user setting. The choice of technologies was based on four criteria as presented and discussed below.

i. *Ubiquity* – Adoption and usage of the technology is widespread. This ensured that members of the population were knowledgeable about the technology, it's make up, its application and method of use; and had direct exposure to the functional and social consequences that result from its use. It was important that the technologies were widely adopted to ensure that the target population was experienced and held mature beliefs. Lack of prior exposure would have induced actors to base their contributions on incomplete or false information.

ii. *Applied for verbal behaviour* – The chosen technologies must be ICTs, therefore must mediate verbal behaviour. The technologies needed to be tools applied for human-to-human interaction.

iii. *Must yield non-utilitarian consequences* – The chosen technologies needed to allow for the influence of non-utilitarian factors to be observed such as status and identity.

iv. *Adoption and use had to be observable in a natural setting*– The behaviour and consequences of adoption and use had to be observable by other members of the social system.

v. Limited choice – The technology must be offered in one or very few versions or generations. This would ensure widespread awareness and common understanding about the technologies amongst the population.

Smartphones and (online) social networks were chosen as the two technologies that satisfied the above criteria for the chosen population of Maltese young adults. Two technologies were chosen instead of one so as to allow for richer understanding to emerge as well as to provide a level of reliability and validity (dependability). The study was limited to two main types of technologies to retain focus and keep the study manageable.

As outlines in Table 4.1, the chosen technologies are also substantially different in form and application. These differences were intentionally sought as a means to allow for comparative rich and thick understanding to emerge and as an opportunity to triangulate results. The differences in technologies allowed for broader application contexts to be captured and for similarities and differences to surface. The researcher

was able to observe and contrast emerging patterns in different situations and to infer conclusions on both similarities and differences.

Table 4.1 - Distinctions between smartphones and social networks

	Smartphone	**Social networks**
Make	Hardware – a physical tangible product	Intangible software easily replicated
Access and cost	Must be purchased at a cost and entails an ongoing financial commitment	Downloadable from the internet at nocost and free to use
Developments	Different generations and diverse (finite) compatible models	One dominant network (Facebook) that develops in increments not generations
Social visibility	Ownership signals status and identity	Used to signal status and identity

A number of other technologies were considered and rejected as these failed to fulfil the above criteria to the same extent of the chosen pair. Some other technologies that were considered included:

- **Smartwatches** – Wearable technologies have attracted the attention of scholar research (Choi and Kim, 2016; Chuah et al., 2016) as they are essentially a novel technology that could potentially replicate the diffusion patterns experiences for MP3s and smartphones in the past. However, this technology was rejected as market diffusion is still in its initial phases, and it would be very difficult to locate a population of users. Clear definitions for are still emerging as its distinction from fashionware and healthware might have caused confusion.

- **Laptops** – Laptops are widely diffused and locate a population where adoption and use is high would have been easy. Laptops were however rejected because many use these exclusively for utilitarian purposes (for example, work, education, and other personal needs), and their use is not as visible and socially sensitive to the extent of smartphones. Furthermore, many laptops are supplied by employers leaving minimal opportunity for user choice.

- **Game consoles and massive online multiplayer games**– Both technologies, one hardware and the other software could have served as alternative cases for the purposes of this study. The population would however need to be narrowed to the *gamers* community that includes both users of game consoles and players. Both technologies serve as good cases to study as they meet the criteria set above, mainly the finite number technology options games and consoles, the desirability of latest technologies and games, and social and hedonic consequences of use. This pair of technologies was however avoided because of complexities that arise due to its dominating hedonic component and lack of utilitarian objectives.

4.3.1.1 Smartphones in focus

Smartphones may be considered as sophisticated devices that serve for a myriad of communications purposes including calling, browsing the internet, taking photos, recording videos, and sending emails. With each generation of technology, smartphones have become more useful, cheaper and ubiquitous. Its ownership and usage is highly visible to observers as these are carried around and used in public. Beyond its communications uses, smartphones also entail fashion with some brands and models being more socially desirable than others. Like cars and watches, but unlike clothes, smartphones are produced under a relatively small number of brand names, each with a limited number of models.

Following Bass (1969) framework for analysing adoption of new technological products and as suggested by Filho(2012) for such devices, smartphones emerge as ideal for such study because they can be highly desirable, include cutting-edge technology, and typically attract high levels of prelaunch hype. Furthermore, these have a relatively short life cycle with fast market penetration, their pricing tends to be an exact science with very high prices for the most desired models, and convey high status for early adopters, as well as attracting media attention. Smartphones serve as an ideal case for study as these fulfil a functional, hedonic and social need for the users (Chuah et al., 2016).

4.3.1.2 Social networks in focus

In the context investigated, as expected and paralleling what literature finds in industrialised societies(Wilson et al., 2012), Facebook was by far the social network most used by actors. A moderate mention of LinkedIn was also encountered. Facebook consists of a series of interrelated profile pages in which users post a broad range of information about themselves and others whilst their profile can be linked to that of others. Facebook users can post self-relevant information, link to other members by becoming friends and interact with other members. Communications occur through a private message system and a public wall system (Wilson et al., 2012).Facebook enables users to make and accumulate friends, present themselves through an online profile, view the profile of friends, and make comments on friends' pages. Facebook also enables its members to join groups with common interests.

The self-representation opportunities social networks offer to users are central to this study due to the strong social consequences and informational reinforcement this entails. In a study on Facebook usage, Bareket-Bojmel et al.(2016) found that self-representations, enhancements or derogations, accounted for 50% of user posts. When users join a social network, they are given a blank profile which they then personalise with information about themselves. This is enriched over time with interactions with other users. Facebook offers an unprecedented way for social scientists to study identity presentation in a naturalistic, socially consequential setting (Wilson et al., 2012). Bareket-Bojmel et al. (2016) make a distinction in the social network user's motivations. They argue that use is often a balance between achieving goals and self-presentation paralleling the utilitarian and informational distinction encountered in the BPM. Bojmel et al. (2016)observed that in clear utilitarian use contexts, users were highly reluctant to derogate their self-representation. They further found that users adjust their self-representation to what they believe produces the optimal audience reaction.

Another study by Lin and Utz(2015) exposed how users reacts to self-presentation posts by others. They found that emotions depend on the strength of the social tie. Users were observed experiencing happiness and mild envy in cases were closer friends posted content related to self-presentation. *Malicious envy* was reported as stronger when users perceived that the posts they read were undeserved. Furthermore, in contrast to other social networking tools, such as dating sites and gaming platforms, Facebook emerges as better suited for this study as it is able to portray a better

representation of user interaction in a natural setting. Despite the efforts of users to portray idealised virtual identities, the literature (Bareket-Bojmel et al., 2016) suggests that self-representation is fairly accurate to offline identity because offline friendships tend to move to Facebook relationships and not the other way.

Whilst both smartphones and social networks entail strong informational consequences, an important distinction must be made. Unlike smartphones, accessing and using social networking technology does not normally convey status or solicit social feedback[3]. The technology is freely accessible and the same functions are available to everyone. Users of social networks elicit social feedback through the application of the technology, and not through observation. This distinction is discussed in further detail as the analysis of data is presented.

4.3.2 Population

The population for this study consisted of Maltese young adults aged between 18 and 35. Being a small island nation with a population of just 420,000, Malta has a relatively homogeneous population with similar societal norms and traditions. Maltese people are bilingual speaking both the Maltese and English language. ICT usage in Malta, particularly amongst young adults is high and compares to European averages.

Further homogeneity was achieved by limiting the population to an age bracket. Individuals aged above 40, later reduced to 35 after the first phases of data collection (outlined below), were excluded from the population since this tend to have different exposure to technology and are expected to show substantially different behavioural traits. Statistics by the Eurostat (European Commission, 2016) show that technology literacy diminishes amongst Maltese above these ages. This is mostly attributed to the socio-economic and technological developments of the past half century. Individuals under the age of 18 were also excluded. Young individuals are expected to think and behave in a different manner because of their lack of experiences, stage of psychological development. Furthermore, their particular work/study, leisure and income situation can cause bias.

[3] This assumption holds only for the target population. However, in a different social context observable access and use could lead to social feedback if access was in some way restricted. Like for example the use of Facebook by children under the allowed age of 13, older people who have mastered the skill of using the internet and hence can use a social network, and under a totalitarian regime where access is restricted and controlled by the state.

4.3.3 Data

Despite focusing on adoption and use, this study has only directly captured verbal behaviour – personal accounts and group interaction. Very few instances of ICT use were directly captured in data.

In pursuing a radical behaviourist lens, the study has treated actor accounts exclusively as forms of social behaviour (Skinner, 1976). This meant that verbal accounts were not treated as cognitive decision processes, what happens *within the skin,* even when actors appeared to be reflective and forming new beliefs. This position contrasts with other theoretic approaches, such as behavioural-intention models, were verbal accounts and introspection are treated as an exhaustive representation of the user's cognitive decision making.

The researcher has treated the captured data exclusively as observations of: actors sharing information about technology and its applications; actors giving feedback on behaviour performance to one another; and actors eliciting or conferring social status. However, by analysing these observations, the researcher was able to indirectly identify wider overt and covert behaviour consequences and locate evidence of underlying elements shaping behaviour. Data provides evidence of actors learning by acquiring new information, forming new beliefs and experiencing emotions. Most importantly, actor intentions were treated as beliefs (attitudes) and not as decisions.

In line with a radical behaviourist stance, all facts and beliefs shared by actors were treated as rules (learned associations) emerging from the actor's learning history. The study is therefore concerned on how rules are shared, how these contribute to changes in the learning history, the potential emotional consequences of behaviour and how learning, the formation of new rules, might impact the likelihood of future behaviour. Table 4.2 below outlines what is directly observed or indirectly inferred through this study.

Table 4.2 - Observations in data

Directly observed	• *Feedback on utilitarian performance* – third person judgment on effectiveness of past or hypothetic behaviour on operation on the environment. • *Informational reinforcement* - third person conferment of social status, direct informational reinforcement or otherwise as a result of past or hypothetic behaviour. • *Sharing of information*–sharing of elements of learning histories; content shared is assumed to benefit the group and individual.
Indirectly observed	• *Past behaviours of actors, others' behaviours observed by actors, others' behaviours actors heard about* – in the form of verbal accounts containing information about a specific situation, a behaviour, and resulting consequences. • *Learning* – when actors were observed changing a held belief (forming new rules – changes in learning history) as a direct result of being exposed to a new information through verbal interaction or observation. • *Symbolic reinforcement* – emotional states recalled by actors as a consequence of a specific past or hypothetic behaviour.
Not observed	• *Introspection* – Accounts of rationalising by actors were avoided although, as discussed later, actors were observed immersing in reflection and changing beliefs after encountering a stimulus in the environment. • *Intentions* – not treated as planned behaviour. Rather viewed as introspection on the likelihood of a specific behaviour emission that would be pursued basing on held beliefs (learning history) and in the specific present internal states context (emotion)

Nevertheless, this approach still poses risks and has limitations. Whilst it has been argued that by adopting a radical behaviourist philosophical position actor accounts can be treated in a stronger scientific manner, the methodology proposed still remains a proxy for observing adoption and use. Whilst all verbal behaviour observed and the findings that emerge have been treated as relevant and valuable, this can never be considered as a complete explanation for the phenomena. All inferences that emerge from this study about user cognition and emission of adoption and use remain theoretic and tentative.

Furthermore, in line with Skinner's concerns (Skinner, 1976), accounting for verbal behaviour remains fraught. The use of mentalistic descriptions and its risk of forcing interpretation might defy the main inductive objective of this study. This is avoided by building on BPM and BPMI as interpretative tools and exclusively treating verbal accounts as described above. However, despite all efforts to maintain objectivity, this study remains subject to potential criticism in this regard.

4.4 Research design

Data were collected through an initial four one-to-one interviews followed by four focus groups. To limit bias whilst stimulating interaction, interviews and focus groups were held in a natural setting, a place that was familiar and comfortable for the actors - on the actor's 'home turf' (King and Horrocks, 2010). Interviews were mostly carried out in the actor's mother tongue - Maltese, (Krueger and Casey, 2002).

Induction prescribes a degree of flexibility and a broad research focus was sharpened as more data were collected and fragments of theory emerged. Abiding by GTM tenets, the study followed the *constant comparative technique* (Glaser and Strauss, 1967), which required a continuous iteration as the researcher reverts and reviews the research bearing and fine-tunes the design along the way. In following such approach, the initial research plan was not tightly prescribed. The research design was treated as a continuous work in progress. As the data collection process progressed, the research plan and focus were reviewed and refocused with every iteration.

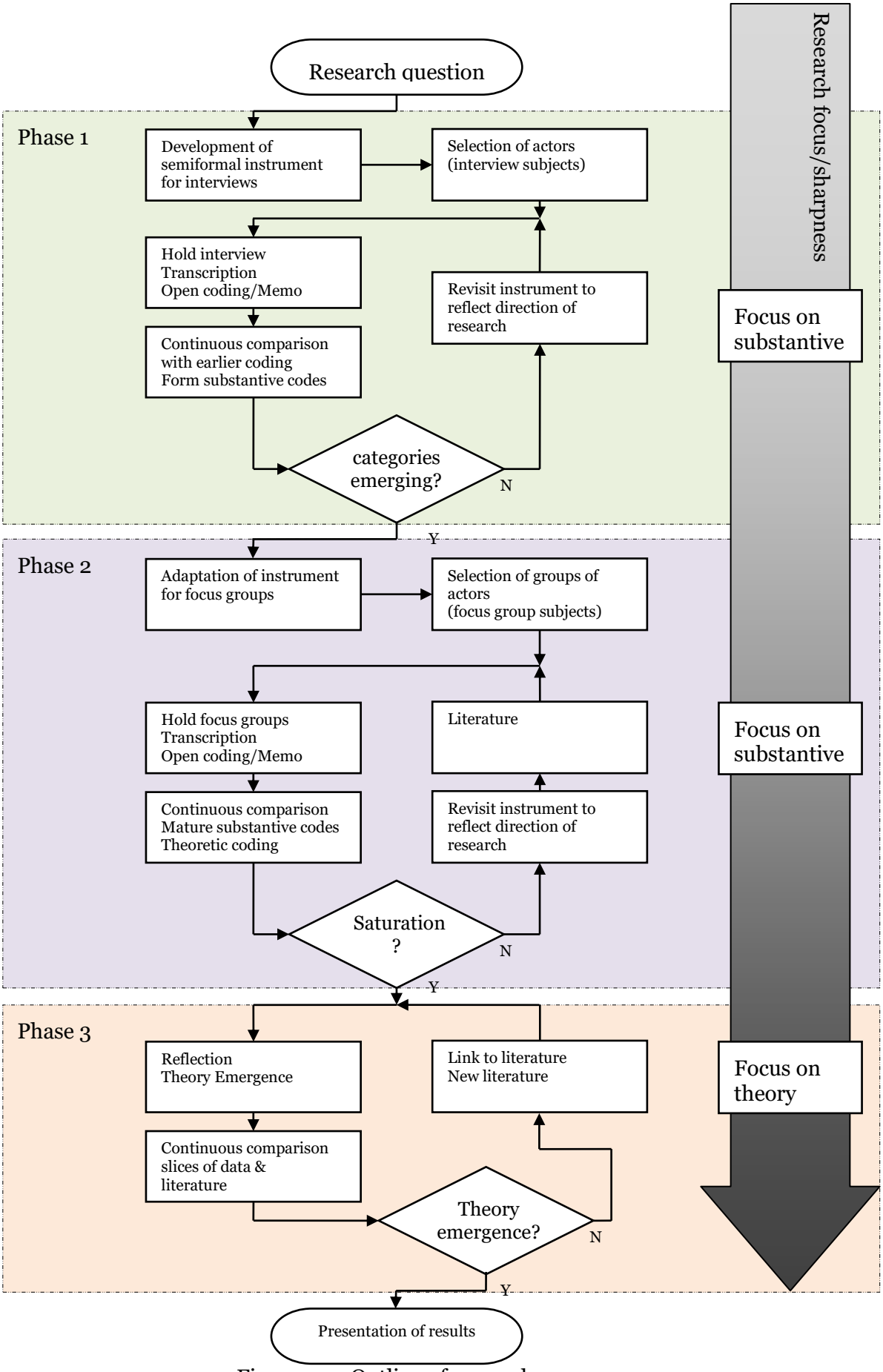


Figure 4.1 - Outline of research process

Data were collected in three iterative phases as outlined in Figure 4.1 below. Each of the three phases represents an iterative process leading to the next when the researcher had enough certainty and confidence to ascertain that a level of saturation was achieved.

4.4.1 Phase one

Phase one of the study aimed at providing an initial understanding about how best to approach the topic, orient the focus of the study, and to plan for the focus groups. A semi-structured instrument was used to elicit data from actors about past behaviour, and observed behaviour of others. The actors were invited to explain what influenced their own and other's adoption and use. A total of four interviews were undertaken (See Table 4.3) each lasting 30 minutes. The interviews were recorded, transcribed and open coded following GTM procedure. Initial findings of phase one are presented in Appendix 3.

Table 4.3 - Actors in phase one

	Name	Age category	Gender	Employment
1	Dorianne	30 – 35	Female	Public Officer
2	Reuben	16 – 20	Male	Public Officer
3	Rachel	20 – 25	Female	Clerical
4	Steve	35 – 40	Male	Manager

4.4.2 Phase two

During the summer of 2013, 31 actors took part in the second and main phase of the research through four focus group interviews. Kitzinger (1995, p. 299) defines focus groups as "*a form of group interview that capitalises on communication between research participants in order to generate data*'. She recommends the method for '*exploring people's knowledge and experiences*" adding that beyond exposing subject's thinking, it also provides an opportunity to explore "*how they think and why they think that way*". Focus groups constitute group discussions which are organised to induce interaction on specific set of issues. The method is distinguished from the broader category of group interviews because it treats group interaction as research data (Kitzinger, 1994; Morgan, 2010).

Use of focus groups in studies with a positivistic or even qualitative orientation is common (Creswell, 2009). Studies within CBA that applied focus groups include Leek et al.(2000b) exploring fish consumption behaviour, Nicholson et al.(2005; 2002) exploring multichannel consumption, and Yermekbayeva(2011), focusing on mobile advertising. However, in contrast to the present study, such studies limit the use of focus groups to an early stage of study aimed as groundwork for later qualitative enquiry.

For inductive approaches, focus groups often serve as the main instrument for data collection as these tend to be very effective and conducive to the emergence of theory (Glaser and Strauss, 1967). The method instigates interaction between actors, which is treated as data (Morgan, 2010), whilst the researcher stirs discussion towards the line of inquiry as it unfolds through the research process. In total 31 actors participated in four focus groups of two hour each. Morgan (1997), as a rule of thumb, recommends three to four focus groups per project whilst Krueger and Casey (2002) recommend three to five groups. Both claim that that increasing the number of groups will seldom provide any additional meaningful insights. This resonates with the GTM stance of stopping when reaching *saturation*(Glaser and Strauss, 1967), that is the point at which additional data collection no longer generates new understanding. Therefore, the number of focus groups was only decided when the researcher, acting as moderator, could anticipate how the actors reacted and when no further new insight was generated, therefore, theory saturation was reached (Glaser and Strauss, 1967; Urquhart, 2013).

Table 4.4 - Focus group by age and gender distribution

Group	*Group Background*	Total	Gender		Age distribution					Social Background (generalisation)
			M	F	18 - 20	20 - 25	25 - 30	26 - 30	31 - 35	
1	*Educators*	7	2	5	1	2		2	2	Middle & working
2	*Students - Polytechnic*	8	4	4	8					Working
3	*Public Admin. Office*	8	4	4		7	1			Middle & working
4	*Students-Medical*	8	1	7		8				Affluent & middle
Total		**31**	**11**	**20**	**9**	**17**	**1**	**2**	**2**	

Each group included seven or eight actors. This number follows the recommendation by Morgan (1997), who suggested six to ten participants, and Krueger and Casey (2002) six to eight. Both sources agree that a group that is too small can be limited in generating discussion whilst being too big might create difficulty to control.

The choice of actors was carefully thought out to represent the chosen population in line with GTM tenets. In GTM, and in qualitative strategies, sampling does not seek to achieve a scientific representation of the population. Rather, GTM aims at identifying and collecting the data that is relevant for theory generation, until saturation is achieved. Theoretic sampling(Glaser and Strauss, 1967), as termed in GTM, is an ongoing process that takes place in parallel to data collection and as part of continuous comparison (Glaser and Strauss, 1967; Urquhart, 2013). The process is guided by an analytical process whereas the researcher continuously identifies where to sample from next. Urquhart (2013, p. 64), citing Glaser and Strauss (1967), claims that the process must be driven by two aims namely: (i) the identification of groups or subgroups the researcher should include in the next effort of data collection; and (ii) the theoretical contribution that each inclusion will add to the study.

Theoretic sampling is an important prerequisite for *continuous comparison* (Glaser and Strauss, 1967) that encompasses a process of contrasting data coded under one category with other instances. Such approach yields two main benefits. First, only data that is relevant is collected purposefully, thus avoiding wasted effort in collecting data that are not contributing to the theory as it evolves. Secondly it allows for *densification,* an opportunity to focus and dig deeper where needed most and therefore generating data that are relevant to the needs as these arise as part of the research process (Urquhart, 2013).

In line with recommendation by Morgan (1997) and (Sim, 1998), the members within the focus groups included homogeneous participants. Inter group homogeneity is recommended to improve interaction and allows for more free-flowing conversations among participants. Within the theoretic lens adopted in this study, homogeneity implies similar social class and similar life and work contexts. Homogeneity was only sought in their backgrounds and not in their attitudes (Morgan, 1997) – in this case towards technology. Whilst all respondents were technology users, diversity in views and behaviours was necessary to ensure an animate productive discussion.

Beyond social class, focus was placed on ensuring that all actors within a focus group were of the same level of organisational authority or status. Whilst the topic is unrelated from the actor's work or study context, different status representation within a focus group could lead to actors feeling uncomfortable while speaking up about their behaviour and views (Krueger and Casey, 2002; Morgan, 1997). Nevertheless, the four groups were identified knowing that despite the homogeneity within, the groups reflected different career and status backgrounds. Such differences provided the opportunity to examine differences between intra and inter group whilst preserving the natural setting.

Against Morgan's (2010, 1997) recommendation, however, members within each focus group were acquaintances rather than strangers. Such decision was made on purpose as the researcher was also interested in directly observing interaction within formed communities. Therefore, being readily acquainted offered an opportunity to capture and observe group interaction in a more natural setting. Two groups included students attending same level of study from different institutions. The other two groups included work colleagues in similar levels within the organisational hierarchy (Krueger and Casey, 2002; Morgan, 1997). All groups were recruited through acquaintances of the researcher.

In recruiting the groups, attention was paid to limit unwanted elements of pique or conflicts between actors that could bias discussion. This entailed an initial screening process. The researcher, through discussions and kind help from acquaintances was able to locate the four groups as follows:

i. Group one included seven individuals working in a public authority that included four public officers, two clerical and a technician. Despite the different background and position within the organisation, there was no hierarchal relationship between the actors. The group members, however, included actors who spent work breaks together and who occasionally met for social events outside work. Whilst the researcher is employed in the same organisation and knew the members of the group, there was no direct work relationship with any. The focus group was held in the organisation's boardroom.

ii. Group two included eight students, aged between 18 and 19, reading for an ICT diploma course at the Malta College of Arts, Science and Technology (MCAST). These students were studying to become technicians within ICT environments.

Access to the group was facilitated by a lecturer, and the session was held on the college premises.

iii. Group three included eight peripatetic educators forming part of a team whose duties include helping students with learning difficulties in different schools around Malta. The group met at the department headquarters twice a week during which they met their coordinator for briefing and planning. The session was held during one of these days. Access to this group was facilitated by the unit coordinator who did not take part in the focus group.

iv. Group four included eight friends who had just concluded their university study. Seven had just concluded the programme to become medical doctors and one for dentistry. The group interview was held early in summer and whilst all had completed their course of study successfully, none had entered into employment as yet. The focus group was held on a Sunday morning at the researcher's home. Access to the group was facilitated by the researcher's sister who was in the same study cohort.

Whilst the selected groups were not intended to be representative of the population (Maltese young adults), or to exhaustively include all the possible diversity present within, in line with Morgan's recommendation (1997), attention was given to capture representation of sex, age (within population), and social class. Race, has been excluded, as it is not normally encountered within the target population or directly relevant to the research enquiry.

Being within an education setup, members of groups two and four included members of same ages. Group two included members from a lower middle class background whilst group four included actors from higher middle and more affluent social segments. This is strongly reflected in the way technology was perceived and valued as further investigated and explained in the discussion. Members from groups one and three had a more diverse mix of ages since these were recruited in work environments. Whilst the socio-economic backgrounds of group one was relatively mixed, group three was more homogeneous. These group combinations offered an opportunity to cover and contrast potential diversities related to age and social class. An attempt was made to cover an equal number of males and females in each group. Due to no-shows on the

day and greater availability, females were substantially overrepresented in groups one and four.

In addition to the above sampling strategy, inner-group dynamics in its natural forms was sought and encouraged. The idea of recruiting whole groups of friends was driven by the opportunity to directly observe interaction in a natural setting, rather than in a setup that was induced for the purposes of the focus group. This was considered as the best approach to directly observe behaviour in a social setting and therefore, for the purposes of this study, instances of communication, feedback and status cues. As a result of this approach, two further benefits emerged. Beyond the ease at which actors found themselves able to express their views, actors were forthcoming to interject and comment on each other's views. In many instances actors, having known their counterparts for some time, could provide rich feedback and third party observation, much valued in this study.

The topic, not viewed as controversial or sensitive, enabled session discussion to be mostly entertaining and self-disclosing (Morgan, 1997) and silent dissent never emerged as a barrier or a source of bias in the data collection process (Kitzinger, 1995). Laughter was a frequent occurrence, and whilst frank talk and disagreement were common, the discussion was always both vivid and light. Such an environment provided for a second benefit as the interaction captured, turned out to be very rich and dense. Discussion picked up very quickly and in some instances moderation encountered challenges at stirring the discussion towards the desired research direction due to enthusiasm. Hence as Morgan suggests (1997), working with prior acquaintances can lead actors to converse more readily.

All the recruited actors were frequent internet users and possessed a smartphone. All had a Facebook account with a couple who had discontinued usage in the past. Therefore, all actors had prior experience and were aware of the functions and typical applications of both technologies.

4.5 Administration of the focus group

As outlined above each focus group was administered in a way to stimulate inter-group interaction in a natural setting limiting biases induced through the data collection method. Each focus group, with the exception of group four, was held on 'home turf'

(King and Horrocks, 2010), that is at the college or workplace at a time during which the group would normally meet. In the case of group four, the focus group was held on a Sunday morning in a quiet courtyard at a private residence. Since group two was administered in a college class, chairs were organised in a circle. In the other groups, participants sat around a large table. This enabled each actor to easily see each other, and giving all participants equal opportunity to interact and observe others (Krueger and Casey, 2002).

No financial incentives or gifts were needed to secure participation. Actors showed general eagerness to participate, as the focus group offered them an opportunity to engage with friends into something unusual during usual working or schooling hours. Group four were encouraged by the prospect of meeting their study colleagues again following a lengthy exam study period. To stimulate interaction and to make the experience more enjoyable, in all four sessions food and drink were offered (Krueger and Casey, 2002). In line with actor preference the interviews were undertaken in Maltese with some occasional switching to English especially in Group 4. Interviews lasted approximately two hours each. All interviews were audio recorded whilst field notes were taken by the moderator on salient observations during the interview.

4.5.1 The research instrument

As outlined above, a qualitative GTM approach calls for a flexible method that is conducive to induction. Flexibility enables the researcher to continuously and iteratively update the method to respond to issues that emerge in the course of data collection. For the purposes of undertaking the focus groups and in line with the method adopted, an interview guide was developed following the recommendations by Krueger and Casey (2002) (Appendix 1). The guide was aimed at outlining the main topics to be covered but yet retained a degree of flexibility as regards to the phrasing of the questions and their order whilst also allowing actors to lead interaction into unanticipated directions (King and Horrocks, 2010).

As part of the instrument guide, two sets of imagery were used (see Appendix 5). The images included advertisement, photos of people using technology and contemporary memes. The scope behind the use of imagery was to stimulate discussion whilst subtly steering it towards the non-utility attributes of technology adoption and use. Not all images were exhibited in each interview.

4.6 The process to theory emergence

This section briefly outlines the GTM procedures adopted to process and analyse data, therefore the coding process leading to theory emergence, and how it was systematically and rigorously applied towards the emergence of data. As outlined above all data were recorded and transcribed, and field notes were recorded throughout the whole data collection process.

At the foundation of the GTM process lies the bottom-up approach where the researcher continuously seeks patterns in data to enable theory to emergence, whilst, at the same time, is equally continuously seeking disconfirming evidence to counter such patterns. In GTM this is achieved through its coding method where the research is not suggested or guided by theory, but by data (Urquhart, 2013, p. 38). Such approach is achieved through *continuous comparison*, (Glaser and Strauss, 1967), a term that has been introduced earlier, which in the context of treating data, it implies the comparison of three strategies namely:

i. Of incident to incident for the emergence of concepts,
ii. Concepts to more incidents for further theoretical elaboration, saturation, and densification of concepts, and
iii. Concepts to concepts for their emergent theoretical integration and through theoretical coding (Glaser and Strauss, 1967; Holton, 2007).

In classical GTM theory emergence is achieved through the adoption of three levels of coding procedures namely *open*, *selective and theoretic* (Glaser and Strauss, 1967; Heath and Cowley, 2004). Despite its structure and rigour, coding in classical GTM retains a degree of flexibility to adapt the method to the research requirements (Urquhart, 2013). It is important to mention again that this study is not following the Straussarian version of GTM which prescribes a more rigid approach to coding and the treatment of data (Heath and Cowley, 2004).

Open coding is the first tool applied in the coding process. As the name implies it entails a deliberately open approach so as not to limit potential directions the research could assume. The process entails attaching initial labels to data which are grouped into larger codes (Urquhart, 2013). In principle all major GTM authors agree in their recommendation that open coding should follow a line by line analysis (Charmaz, 2006; Glaser, 1998; Strauss and Corbin, 1998; Urquhart, 2013), although many do

agree that in specific datasets this might not be the case. Line by line analysis has been adopted in this study.

Selective Coding follows with a focus on core categories. This takes place when no further open codes emerge whilst themes become more defined implying a level of saturation being reached (Urquhart, 2013). Categories begin to group at this stage and initial abstractions to theory begin to emerge. A substantive understanding emerged at this level.

Theoretical coding occurs as the final stage "*to conceptualize how the substantive codes may relate to each other as hypotheses to be integrated into the theory*"(Holton, 2007, p. 255). GTM calls for an ability to abstract and get conceptual, which requires a degree of detachment from data to avoid blurring and difficulty in seeing the theoretical patterns (Scott, 2009). Glaser adds that substantive codes break data whilst theoretical codes "*weave the fractured story back together again [into] an organized whole theory*" (1978, p. 165).

This distinction in the three levels of coding leading to theory emergence served as the foundations of the presentation of results and the discussion that will follow from this point. However, it must be recalled that the *continuous comparison* nature of the study, in reality called for a degree of iteration between the different levels, and despite being presented in a logical sequential fashion, the actual undertaking of the study included a degree of overlapping and backward reverting to further investigate or discontinue a particular inquiry lead.

The discussion presented in the following chapters is the result of a central GTM tool, the memoing process, which allows for the development of thoughts and their maturity towards abstraction and theory emergence. *Theoretic memos* are notes about ideas the researcher continuously revisits throughout the research process guiding theoretic sampling, core category formation, literature review and theory focus. In this study, theoretic memos served as the foundation on which the arguments presented in subsequent parts have been developed. Again, despite being presented in a logical sequential flow, they have emerged as distinct memos that have evolved, merged and split throughout the research process. The origins of the *theoretic memos* developed in this study have mostly evolved from the field notes taken during the data collection phase. Unlike in Straussarian GTM, classical GTM does not impose a set format in the

design of field notes, but rather encourage changes in format as the research develops (Glaser, 1998; Urquhart, 2013). Such view is further encouraged as more detailed *theoretic memos* emerge.

Table 4.5 - Interview transcript details

Phase	Group	Number of Participants	Interactions	Words
2	1	7	978	**11,356**
	2	8	474	**5,020**
	3	8	822	**8,950**
	4	8	649	**8,723**
1	I1- DB	1	115	**2,141**
	I2- RA	1	151	**2,162**
	I3 - SA	1	64	**2,254**
	I4 ST	1	208	**2,129**
	Total	**35**	**3,461**	**42,735**

4.7 Ethics

Proper consideration of potential ethical issues is central to a sound social sciences research. When research involves human subjects, as the case in this study, the researcher is expected to approach participants and win their trust through integrity. It is the role of the researcher to ensure that throughout the research process, participants and organisations/institutions are kept protected. The researcher must further also ensure that he does not place the actors or any other party supporting the research in any undue risk. Cresswell (2009) argues that ethical issues arise throughout the whole process of a research project namely stages:

i. The research problem – The researcher must ensure that the identified research problem is meaningful to participants and it ultimately benefits them.

ii. The purpose and question – The researcher must communicate the research question clearly to participants avoiding deceit.

iii. In data collection – The researcher must ensure that an honest informed consent is given and that all participants are not placed in any undue risk whilst vulnerable groups are respected.

iv. In the data analysis – As understanding emerges, the researcher must ensure that the participants and other third parties continue to be protected particularly by respecting privacy; adequate treatment of data including ownership, storage and disposal; and accuracy in analysis.

v. Interpretation and in the writing and dissemination of results – The researcher must ensure good use of language to limit bias whilst reporting findings correctly.

In an inductive study that adopts a GTM method, ethical considerations tend to be dynamic as the study unfolds and theoretic insight develops. As new aspects emerge and new theoretic fronts are pursued, the researcher must remain vigilant to ethical issues that might not have been foreseen at the beginning. Every effort has been made to ensure that this study adheres to the above principles, as well as the policies and guidelines of the Durham University Ethics Advisory Committee and the Durham University Business School's Sub-Committee for Ethics (DUBS SCE)[4].

Recruited actors (participants) were all adults with the ability of giving informed consent. Participation was voluntary and actors could pull out of the discussion at any time. To ensure privacy, all actor names were anonymised by assigning fictitious names preserving gender. Despite this study explores a topic that does not appear to stir any controversy and its understanding does not require any particular disclosure of private sensitive information, an overt strategy was still pursued from the outset. Informed consent was given importance throughout data collection. Actors were informed beforehand about the overall purpose of the investigation and the main features of the design.

The topic and technologies in focus, the methodology pursued the choice and recruitment of actors (participants), and the analysis, representation and dissemination of results was not expected to put actors, the researcher and any other third parties in any extraordinary risk. Rather, recruitment and the data collection

[4] Ethics self assessment forms, as required by the University policy, are included in Annex 4. Forms were submitted and approved at the DBA transfer phase. Updated forms that reflect the new thesis title and changes in methodology and substantive focus are presented in Appendix 4.

process emerged as a pleasant social experience for both actors and the researcher. Throughout data collection, there were no reported incidences of actors being under pressure or distress as a result of discussion. No actors opted not to take part in a specific discussion or to terminate participation prematurely. Digital recordings and transcripts of interviews have been safely stored.

4.8 Software

NVivo Version 10 by Qualitative Research Solutions International (QSR) was used as Computer Assisted Qualitative Data Software Analysis (CAQDAS) to code, analyse and categorise transcripts. Whilst software did not decrease the amount of time needed to read, conceptualize, and analyse data, when compared to manual methods it allowed for a more efficient and in-depth means to organize data (Bringer et al., 2004). The in-built indexing and search tools were instrumental in the coding processes, exposing relationships, and theoretical thinking. Software further enabled the researcher to record and manage memoing as an iterative and organic process, otherwise restricted by the linear confines of a word processors document.

4.9 Chapter conclusions

This chapter has outlined the philosophical positioning, the research strategy and the method that has been assumed and followed in this study. Building on the critique in the literature regarding the reliance on intention-behaviour link and the lack of research pluralism (Bagozzi, 2007), an inductive methodology was sought. It has been argued that this approach espouses with the Skinnerian philosophical positioning of *radical behaviourism*. The study is therefore proposed as part of a progressive programme aimed at exposing new understanding and suggesting new theory.

Basing on the philosophical worldview pursued, the study used GTM to analyse and categorise data collected through individual and group interviews. The substantive area in focus entailed a population of young Maltese adults and the focus was placed on the adoption and usage of smartphones and online social networks. Data was collected in two phases, the first consisting of pilot interviews and the second consisting of semi-structured group interviews. The next chapter presents and discusses the findings that emerge from data whilst proposing new theoretic insight.

5 Findings and discussion

> *"It's very slim, very light… and I think they're good. I don't own anything Apple… so I think I'd go for it."* Valerie, actor in focus group

This chapter presents the findings and conceptual understanding emerging from the data that was captured through individual interviews and focus group discussions. Data were systematically analysed and categorised following a cycle of data collection and reflection as defined by the methodology pursued. Logical associations between emerging elements were explored and developed through documented memos shedding light on potential relationships and causes.

The chapter is divided in three parts. The first part presents the core findings at the substantive level with a focus on non-utilitarian factors. Categorisations, as emergent following GTM, are defined, discussed and supported by examples in data. The second part builds on findings by discussing their implications and by building formal theory. The study puts forward a conceptual framework for adoption and use that builds on findings and the tenets of CBA. The final part of the chapter discusses the practical implications by discussing how verbal accounts should be treated and interpreted and by proposing two interpretative tools for ICT product or service market positioning.

5.1 Findings

This section presents the five facets of understanding as emergent from data. This section explores each of these facets and its respective categorisations in detail exposing and inferring structure, relationships and inferences. These are briefly introduced here whilst a detailed discussed follows in subsequent subsections:

i. *User awareness* emerged as the actor's perception of technology. Three subcategories of *awareness* were identified namely: *facts* – factual and objective attributes assigned to describe the technology; *attitudes* – subjective positive or negative attributes assigned to the technology; and, *perceived* or *expected consequences* – experienced or projected outcomes of behaviour by self or others.

ii. *The user situation* emerged as elements that increase or decrease the likelihood of behaviour to take place. The user situation is determined by the external environmental, such as the advent of new technology or a need to contact a friend, and the internal state, such as motivation and emotions.

iii. *User behaviour* entails the adoption and/or use of the technologies under investigation. Data indicate that technology use is a complex interdependent array of independent behaviours that, besides the manipulation of the technology as a tool, it also accounts for other emissions including purchase, adaptation and social status emissions.

iv. *Internal events* emerged as internal covert processes through which actors appeared to engage in learning by rationalising past or hypothetical behaviour, producing *perceived consequences* and maintaining *attitudes* and *facts*.

v. *The social context of behaviour* emerged as an independent dimension of influence on the formation of *awareness* and behaviour emission. Actors behave and learn in a community. Actors emerged very interested in the behaviours of others, judging performance and inferring consequences. Actors were also observed gaining and giving *feedback* from and to others on past or hypothetical future behaviour.

5.1.1 User awareness

All descriptive attributes actors, assigned to technologies, emerged categorised as elements of *Awareness*. Awareness entailed instances of factual attributes, subjective beliefs and feelings. In analysing and categorising all such instances in data, three levels of *awareness* emerged: (i) *Facts,* consisting of objective elements of information that describe the technology; (ii) *Attitudes*, that entail subjective beliefs that add further meaning to the technology and its application; and, (iii) *Consequences,* which refer to what actors subjectively perceived as actual or potential outcomes resulting from using the ICT in the specific situation. Figure 5.2 below outlines the sub categorisations of all *Awareness* elements. All actor accounts in data can be identified to one or more of these sub-categories.

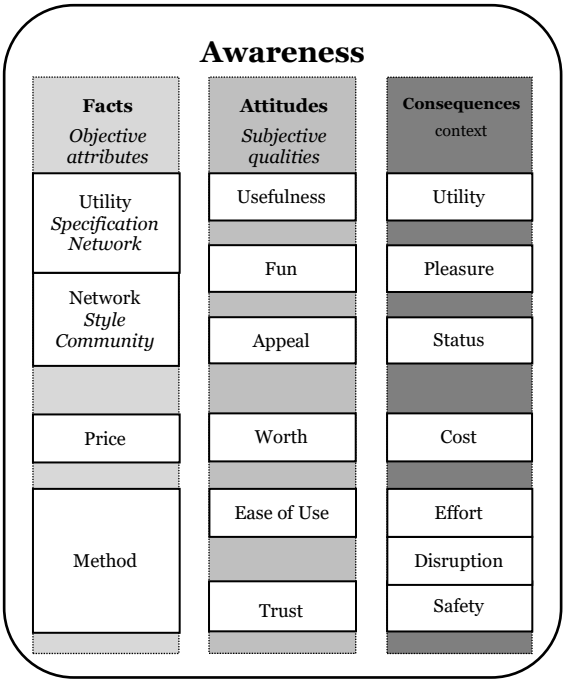


Figure 5.1 - Awareness categories and subcategories

5.1.1.1 Objective facts

Actors appeared to perceive technology through a mix of factual objective attributes and subjective views. Objective factual fragments of information emerged under a category termed as *facts*. Accounts of *facts*, which deal with various aspects of technology adoption and use, were grouped into further five sub-categories attributes namely: *utility* (*Specification* and *Network*), *social* (*Style* and *Community*), *Price*, *Method* and *Type*.

Utility attributes emerged as *facts* related to the function of the technology. Two further sub-categorisations emerged. These were *specification* attributes that describe the technology and how it functions, and *network* attributes that describe the utility of the technology in relation to its diffusion and that of other competing technologies. *Specification attributes* describe the technical specifications and functions of the technology and its application. For example, actors, whilst talking about smartphones, mentioned the battery lifetime, the type of operating system, and the availability and quality of the camera.

Table 5.1 - Examples of specification attributes

Actor	Data
Keith	[The smartphone] has everything in it – Camera, Internet and you can buy Apps
Eleanor	Applications are tailor-made; more than just a calculator
Dylan	[it] has an infrared module that connects to all types of televisions Very thin, very light.
Steve	The Battery [life] is short

Network emerged as the effect a user has on the value of that product to other users, and the potential lock-in to one platform across various technologies. For example, actors referred to how a critical mass of users shifted from one generation of social network to another over time, to the availability of applications for specific platforms and to how sticking to BlackBerry, Apple and Android across devices added value, but limited switching opportunity.

Table 5.2 - Examples of network attributes

Actor	Data
Karen	*…you do not find applications for [BlackBerry] as much as you find for Android or iPhone.*
Rachel	*At the beginning we used MIRC, then it was no longer used and in came MSN.*
Romina	*…you can connect with the iPad, if you have one. Everything is connected.*

Social attributes emerged as factual elements that have no direct relation to utility but relate to social contexts of use. Two further sub-categories emerged under *Social* attitudes: *Style* attributes which describe the technology's appeal; and *Community* attributes which describe who uses the technology.

The *Style Attributes* sub-category emerged as describing those observable attributes of the technology which appear to have no clear direct relation to the functionality of the technology. Style attributes such as the colour and the feel of smartphones was mentioned frequently.

Table 5.3 - Examples of style attributes

Actor	Data
Darren	*Samsung is more… colourful. The iPhone is boxier; round edged and has that 'Apple' on the back that attracts attention.*
Valerie	*It's purple.*
Annmarie	*It's pink. The buttons as well.*

Community attributes emerged as information about who uses the technology. Actors appeared very sensitive about who uses the technology and which technology is trending most.

Table 5.4 - Examples of community attributes

Actor	Data
Karen	*…there are many followers who would buy any new thing that gets launched.*
Marthese	*…many foreigners, almost everyone, have an iPhone. Lately I am seeing many people with the Beats Audio headphones.*
Reuben	*[LinkedIn is] a network for professional people.*
Roberta	*[Apple Air is for] people that work in IT.*
Yvonne	[Nokia 3110 is used by] the elderly
Reuben	[Nokia 3110 is used by] those that do not take care of their mobile phone or those that work in environments where the mobile is prone to damage. Like builders!

Despite the differences between *Utility* and *Social Attributes,* actors often merged both into single statements. For example talking about the iPhone Valerie said that '*it's very slim*' and one commented that '*the casing is Aluminium*' and that '*the display is very big*'. Whilst being slim and the casing being made of aluminium is a *Utility* attribute as it provides a light yet strong piece of hardware, the material and shape can also be an element of appeal. Similarly whilst the big screen is seen as providing a better interface, it is also presented as an element of design and an indication of sophisticated technology.

Method attributes emerged as *fact* elements that describe how technology works and how it should be used. The below example highlights Dylan's understanding of a novel hands-free control function that was available on his new Samsung smartphone.

Yvonne	*For example, even to switch it on, u do like this [hand gestures]… and it switches on.*
Dylan:	*And to read for example, to scroll, just with your head to scroll [nods his head]*
Yvonne	*True, even to touch… touch not press, from this distance, about two centimetres away?*
	…
Dylan	*If you are not looking at the screen it won't work!*
Stella	*But if you are reading and someone asks 'Do you want a coffee?' 'Yes.' It scrolls as you read!*
Dylan	*But then again you can switch it off.*

Price attributes emerged as a separate *fact* fragment that describes the cost to be incurred if a purchase was involved. For example Yvonne was convinced that the Samsung S4 was 600 Euro, Derik knew that the Mac Air should cost almost 2000 Euro and Astrid knew that in December the iPhone would be 800 Euro. Rachel got her phone from the internet as '*a Desire could be found for 180 Euro on eBay*'.

In addition to *facts*, names such as *Android, apple, laptop, smartphone, social network, and Samsung* are all examples of such attributes, which whilst being factual, automatically infer further meanings of both factual and subjective nature. For example, Marthese in describing a particular smartphone device said that '*It's an Android*' and that '*Google and Motorola built its software together*.' When actors acknowledged that a device was developed by a big name, then all the awareness elements associated with the name appeared also inherited by the respective technology.

5.1.1.2 Subjective attitudes

Attitudes entail subjective beliefs held by a specific technology. For *example,* Andrea described the iPhone as *'very good quality'* and Aldo said that '*Apple was the first to come up with a nice design'*. Peter said that the technology was '*overrated*' *whilst* Alessia was '*not impressed*' and Andrea considered it '*overpriced'*. This category is also distinct from *Consequences,* in that under the current category, beliefs were expressed independently from a specific context. Andrea's view that iPhones are of very good quality but overpriced, as an example, is a generic belief that applies to the technology irrespectively of the context of use. For Andrea, such belief appears to hold irrespective

of any foreseeable situation. Six categories of *attitudes* emerged namely *usefulness, appeal, pleasure, trust, worth* and *ease of use*.

Usefulness and *appeal* qualities emerged as subjective beliefs matching the *utility* and *network facts* attributes presented in the previous subsection. *Usefulness* qualities, a term borrowed from the TAM(Davis, 1989), refers to subjective beliefs related to the utility of the specific technology. Peter, for example considers that Mac computers as '*useful*' and Roberta considers Mac technology as '*powerful*'. Steve claimed that the iPhone is robust whilst Android phones are more open. Peter felt that the HTC Wildfire has a good camera whilst Mauro was under the '*impression*' that the iPhone is way better.

In some instances subjective beliefs were conditioned by the network effect as in the example below where Darren said that the BlackBerry is '*comfy*' for organisations because of the lack of '*fiddling*'. Darren saw the BlackBerry as more *'business oriented*' rather than for everyday use.

Darren	*It's like comfy for the organisation because you have emails that you can read and you do not have a lot of fiddling to do. The Berry is more like business oriented than for… normal people.*

Appeal qualities referred to the non utilitarian attributes that served to attract an actor and/or the community towards its adoption and use. As outlined in the example below Dylan perceived the Sony Experia as '*beautiful*'. Marthese subjectively added that some segments of higher status users are very selective when it comes to style.

Dylan	*And then there is the Sony Experia. Beautiful!*
Marthese	*They believe in it. They believe a lot in the design because they are Americans. Like the iPhone. It depends on the brand as well. If you look at the American ones and see Motorola…. some brands, even BlackBerry, you see that the new design, targeted at particular segments. I mean, you see them abroad, the professionals, they change the mobile frequently.*

In some instances actors expressed how technology contributed to the feeling of group belonging. For example Aldo felt that the BlackBerry is business-oriented because

when you use it '*you are like a businessman*'. Eleanor said that Apple conveys a level of status as '*having Apple, you belong to a category [of people]*'.

Beyond *utility* and *appeal*, actors also appeared to value the *pleasure* qualities of technology ownership and use. For example, when an old Nokia (exhibit 1.5 in Appendix 3) was shown, actors from both focus groups two and four reacted by recalling the game Snake. The interaction (reproduced below) shows actors from focus group four agreeing on fun derived from playing Snake and the association with the Nokia 3110.

Julienne	*I used to like it.*
Valerie	*They were convenient.*
Annmarie	*They had Snake!*
Julienne	*Yes. Yes.*
Maryrose	*Hey, I like Snake.*
Annmarie	*I do not have any good game now!*

However, beside games which are directly aimed for hedonic purposes, on a number of instances, when actors talked about *utility* and *appeal* qualities, they also indirectly referred to pleasure experiences. In the example below, whilst Keith talks about *usefulness* qualities, he also indirectly exposes the *hedonic* qualities behind taking photos, buying, playing and reading, as well as the opportunity of doing many other things *'as you feel like'*.

Interviewer	*When you say that you like a mobile phone, what exactly are you referring to?*
Keith	*It's that you have everything within it. Camera, internet, you can buy apps to play; you are open to use it as you feel like! You do not need to carry many things with you. You can also use it as an eBook if your screen is large enough.*

Similarly, when actors talked about the looks of technology, the phrase they often expressed an element of enjoyment in possessing a desirable or conspicuous piece of technology. For example, whilst Mauro talks about the design attributes of the Motorola, Marthese agrees and further implies pleasure derived by simply holding the device in hand.

Mauro	*The Motorola, case in point, is really nice.*

Marthese	*It's very nice, when you hold it in your hands. True..*

Astrid, on the other hand, expressed the opposite, a negative outlook at the possession of something that is not desirable.

Interviewer	*Why is it important that the looks match your tastes?*
Astrid	*Because I do not like going out with an ugly mobile. Do you understand?*

Ease of use qualities, terminology also borrowed from TAM, emerged as how easy actors perceived the adoption or use of the specific technology and whether it was worth the effort. Rachel, for example, mentioned how difficult she found it to switch from Hi5 to Facebook.

Rachel	*[Initially] it was very difficult to understand, when compared to Hi 5. I remember that Hi 5 was a bit difficult. It is still being updated.*

Stella, on listening to Dylan's explanation of how his smartphone can be controlled by gestures, appeared to form a sceptical opinion on the practicality of what the technology offers.

Stella	*But is it practical? Or is all this unpractical? Maybe I moved my head not because I want to scroll upwards.*

Dorianne, despite being a technology user, did not consider herself tech savvy. She was very sceptical about some new technological trends. She expressed her views that accessing the Internet on a small screen is impractical and learning to operate a smartphone like hers is a time consuming activity that might not be worth the effort even though the consequences of not adopting could bear a cost.

Dorianne	*To be honest I am not a very…. I use the phone for necessity, for me I prefer using the laptop. I prefer to have the laptop handy. I get a bit fed up accessing the internet on a small screen…*
Interviewer	*Do you feel disadvantaged to others, or do you feel uncomfortable in front of others who use their mobile phone more than you do…*

Dorianne *I wish I knew more how to operate my mobile phone, I feel stupid because when I hear people talking about what they do with their phone. For me they are talking Arabic…. I do not have the time to really go into it and so I just use the basic and whatever I need. I am not a very technology savvy person.*

Reuben on the other hand outlined why BlackBerry is so appropriate for businessmen to use especially when compared to other phones.

Reuben *It provides an interface for people in business. You do not have all those extra applications and screens… and difficulty to type and so on. You have a qwerty keyboard, present all the time, you have all the tools a businessman needs….*

Worth qualities captures the perceived legitimacy of the cost of the technology. For example, most actors subjectively considered the iPhone as an expensive phone. Some, like Andrea, went further claiming that "*it is overpriced*" or even 'a cheat'.

Sandra *I recall once doing a search, I am not sure because it has been quite some time, for example the iPhone at 100 Euro… with 100 Euro it costs to make, this means that they fix the price… for the brand name. You are not paying for the gadget… but for the brand name.*

For others, like Roberta, the price of the same technology was perceived as legitimate, whilst Stephanie insists that the legitimacy of price will depend on the user's needs.

Interviewer *Is 600 Euro expensive? What are your views?*

Roberta *I do not think it is expensive for what it can do when compared to the mobiles we used to buy before which couldn't do much. Is it?*

Stephanie *It all depends on how much you need it?*

Trust qualities emerge from perceived hazards, or mitigation of, related to the implications of use. Mauro, for example believes that "*where professionals are concerned', iOS, the Operating System running Apple devices, is 'more secure'*. Astrid, on the other hand claimed that she wouldn't want to own a limited edition iPhone with

a diamond trim (see Appendix 4 Exhibit 1.2) because she '*would not feel safe walking with that.*' Loraine adds that risk is not always the result of one's own actions.

> Loraine *I am in control of what I do. The problem is what others do. If someone else tags you in something that you do not like, …you may hide it, but it is still there.*

5.1.1.1 Perceived and expected consequences

The *consequences* category represents actual or hypothetic outcomes of behaviour. *Consequences* emerged within a behaviour context built on the evaluation or prediction of outcomes. It must be clarified from the outset that the data presented below constitute behavioural consequences as perceived and communicated by actors. Behaviour consequences were not directly measured in this study. This means that data are limited to consequences as observed and subjectively interpreted by actors. Data featured under this category originated from: (i) actor accounts of own past behaviours, (ii) actor accounts of past behaviours by others as directly observed by the actor, or communicated by word of mouth by others, and (iii) actor's considerations of potential outcomes of hypothetical behaviour by themselves or others. C*onsequences* emerged in seven subcategories namely *utility, status*, *hedonism, cost, effort, disruption* and *safety*.

Utility consequences captures actor's perceived utility gained as a result of usage within a defined behaviour context. Actors mostly recognised that the main advantage of ICT usage consisted of better opportunities to communicate. In the examples below Steve, Loraine Rachel and Reuben mention networking advantages and opportunities technologies provide.

> Steve *Unfortunately my work here does not permit that I go out. Most of the information you need, you have to get it from such sources. That is the primary function of LinkedIn. Another function of LinkedIn is that… it offers a messaging platform. You can mail people without having their email addresses because you remain within the LinkedIn network. Last Saturday I was at a BBQ, I was reading the FAN magazine, there was column by Ramona from Vodafone, and I sent her a message through LinkedIn about her article. Obviously to sell my profile, my competencies and my job, and also to monitor vacancies, promote our public events.*

Loraine *I have Facebook, but I use it more to stay in contact with friends which I do not see regularly… [I use it] to stay in contact with people…*

Rachel *You can find people you haven't seen for some time… for example you have family living abroad…*

Instead of sending photos you can make group clause, and 'like us'. We have a group like this. There are advantages. For example we are studying and we created a group and [now] we help each other on it. If it wasn't for it, we would have to stay messaging each other via phone or email. I think it would have been much more difficult because many people are spending a lot of time on Facebook. In fact when I ask a question - I get an answer immediately.

Reuben *I used to use Facebook to market events that I organised and I wasn't interested whether the person I was adding was a friend. I used it purely for marketing purposes. To spam people's profiles. That was the scope and it still is. The more [friends] you have… today I can filter. Today Facebook gives you the facility to see what [and] how much access to your profile they will have… and since Facebook gave you this facility… you have to choose the people and levels.*

As consequence of technology use, actors discovered that they could become more effective in their daily activity. Alessia, for example, found that the mobile app could help her manage her appointments.

Alessia *I enabled […] the calendar. So… It synchronises with the Gmail. So that's, you know, if I am going somewhere and I am not sure… I have many appointments; I can check quickly and I see…. But if I am going out, or going to a restaurant, swimming or so with friends, it wouldn't make a difference.*

Actors consistently viewed ICT as a versatile tool and an opportunity to do things otherwise not possible. Maryrose, as a new doctor, considered smartphones as an opportunity to carry around the medical reference books when doing hospital ward

visits whilst Josephine claimed that an electronic medical reference was more convenient due to its versatility.

Maryrose	*Another use for it is for example the fact that you will not carry with you Books, at least until we start. For example you would not carry the BNF (Medical Reference Book) with you.*
Josephine	*It is more convenient to look in the electronic version of this BNF for example instead of looking in an index of a book. Because it is quite a complex book. Therefore electronically…. due to hyperlinks and search.*

Actors were also able to project consequences on hypothetic behaviour scenarios, even if these involved others. For example, Dorianne, a non user, expressed how others who use LinkedIn benefited from its utility.

Dorianne	*Some people would probably use it to try and further their career, some will use it to find another job, getting contacts, because obviously some times for your work it is good to have some contacts some will come in handy,… it is a good network to meet certain type of people or at least people know that you exist… let's put it this way in the work environment.*

Beyond utility, actors also emerged sensitive to consequences on social status that result from adoption or use. For example Peter below outlined the consequences of being seen with a '*nice*' smartphone or otherwise.

Peter	*It is the usual situation, first impressions count. Hence, even when you try a new mobile - true you will look at apps and its specs. However, it's the design that attracts you first. There won't be a model with a crappy design, and, you would try it. It could have much better apps and specs than the other… but the first thing to get attention - it's the design.*
Interviewer	*But what difference does it make to have a nice mobile?*
Andrea	*How you look in front of people.*
Aldo	*Exactly, that's it!*

Andrea	*It's like when you go out with nice clothes, and see how you will look in front of people*
Astrid	*The mobile has become like an accessory. (Others agree). And it's always with you.*

Aldo expressed his desire to own a BlackBerry because by being seen using it, he would *'look like a businessman'*.

Interviewer	*Why do you want to buy a BlackBerry?*
Aldo	*Because I see it like business-oriented. Like that, you look like a businessman.*

Actors claimed that they did not want to be seen using old technology as this would negatively impact their image. For example, whilst the Nokia 3110 was considered by many as a valid device due to its robustness and ease of use, many were adamant on not being seen possessing using it.

Andrea	*It's robust but because of my image I do not use [it].*

Steve	I think that today I would not keep a phone like that. I think that even in terms of status, I *would not be comfortable showing that I have such a mobile.*

Stella	*No, I would definitely not take it out.*
Interviewer	*Why?*
Stella	*Because it is humiliating (laughter).*
Interviewer	*Why would you feel humiliated?*
Stella	*No. The time is over now…. for that type of mobile.*
Roberta	*As if you are bringing in a sixties style.*
Mauro	*You feel stupid telling them 'I do not have a mobile'*
Stella	*Exactly, exactly. I prefer borrowing someone else's mobile if I really need one…*

Actors were not always able to provide coherent rational explanations for their strong positions. For example, Annmarie outlined the reasons for choosing her smartphone. She mentioned various *style attitudes* and *appeal qualities*. However, she was unable to qualify what the consequences of having a '*nice design*' entail.

Annmarie I *have LG GW300. I chose it because it has a nice design - I have to admit it. You tell me what is the difference? I do not know as even the colours they choose. Now maybe my mobile does not appeal to everyone, but the fact that it is pink …*

The experience of pleasure that results from owning or using ICT was reported by many actors. Both focus groups four and three recalled that Nokia 3110 was fun because it had a game called Snake. However, actors also claimed that pleasure was not solely derived from games. Andrea, for example, expressed excitement at the prospect of getting his hands on new technology whilst Peter felt uneasy being separated from technology for long periods of time.

Andrea *I like seeing new technology, experimenting with it, I like it too. I feel confident.*

Peter *I cannot imagine myself without gadgets. At any time of day - maximum of two hours without… I know, I cannot imagine [myself with] no connection.*

Actors 'enjoyed' using technology for social purposes. Stephanie and Eleanor, below, talked about Facebook and how they enjoyed themselves observing and gossiping about people, taking part in competitions, communicating with friends, and learning about new developments.

Stephanie *I have Facebook, not that I can't live without. That is I do have it, I use it just about… for example to spy and gossip about people (laughter).*

Eleanor *I have Facebook, at least I log in once a day, I use it to stay in contact with friends, especially those that I haven't seen for some time. We have our group, and so I enjoy logging in communicating with them. As Astrid was saying, I enjoy it when I want to see some advertisement or, for example, the local council, I say 'let me see what is happening right now'.*

Data further show actors engaging in pleasure seeking activities to overcome boredom. The examples below highlight how Annabelle, Astrid and Karen revert to technology to

'*kill time*' and '*have fun*' by seeking something '*interesting*' such as reading news, socialising opportunities and looking at advertisements.

Annabelle *I also use it to kill time, playing a game, or so, I have fun like that as well.*

Astrid *I log in frequently; ever so often I need to login to see. Even if many times nothing interesting happens... the truth is that you get to know many things too.*

Apart from gossip, even as advertisements and so on, even for example to see what shoes there are, something small; every shop has a page; you visit the page; and that's it - You choose a particular pair of shoes...

Karen *Example, when I am on the bus and have nothing to do, I just go online.*

Interviewer *And what do you do?*

Karen *Well... I read the news feed. Many times I follow those by the Times of Malta. I visit websites... Then I end up visiting the Times of Malta website...*

Roberta *I use it because I have an application for the mobile. Using it is a habit. I do not see it as essential, but it's like needing to know what's happening. Sometimes I browse Facebook, to learn about people and to check what my friends are up to.*

When actors talked about the price paid, they appeared to balance the benefits gained from use against the aversive effect on their economic disposition. For example Annabelle below explains why she bought the Galaxy Ace. She states that the price paid was '*worth it*' and despite the mandatory cost incurred, she still thinks that it was a good deal. Keith considered his HTC as a compromise, '*not too expensive',* whilst offering acceptable functionality.

Annabelle *Galaxy Ace. I bought it for the price which I found very worth it. I wanted to have the Internet and the applications and so on. I found it worth it. The camera, for the price is good too. It was a good choice!*

Keith	*I have an HTC Wildfire, and I chose it because it was mid range and not too expensive.*

In some instances, however, actors saw an opportunity to indirectly spend less. Besides the fact that Aldo considered his smartphone as *'value for money'*, he also notes the benefit of free messages. This implied that in the long term, by adopting the technology, he would be mitigating costs incurred. Reuben, talking about LinkedIn, argued that it can be a substitute to attending expensive networking events.

Aldo	*A point I haven't mentioned, is its value for money. You do not have to avoid sending unnecessary messages. [Messages] come almost free.*

Reuben	*Many people attend conferences or meetings to develop their contact network which cost them a lot of money, a lot of time…*

Besides the above identified consequences, actors were also sensitive to other indirect consequences in the form of effort, safety and disruption, sometimes unpredicted. For example, by switching to a smartphone without a keypad, despite its advantages, Annmarie lost the opportunity to text and drive. Sandra ended up wasting time and disrupting her study because of using Facebook.

Annmarie	*I miss texting a lot. For example you cannot text while driving… I know that I am not supposed to… but it was easy with the old ones.*

Sandra	*I have one but it's deactivated. I used to waste too much time on it.*
Interviewer	*And what did you do on it?*
Sandra	*Chatting with this and that…*
Interviewer	*Chatting…*
Sandra	*Then I would waste loads of time. I used to say 'I will start to study', but I would never start.*

Eleanor argued that using Facebook meant losing privacy. Their concern was not primarily their security, but rather the consequences of not being able to have a private life. Eleanor, as a new teacher, did not want her students to learn about her private life.

Eleanor	*I do not like showing where I live, and things of the sort. I have a photo which does not even belong to me. True that it's edited by me but it's not my face. I want my life to remain private because that is the only thing I have. Especially when I was a student teacher. 'Can I add you on Facebook?' 'No. I am your teacher and you are my student. That is the situation.'*

Effort consequences emerged as the perceived effort actors undergone to adapt to new ICT through learning new skills and discarding old habits. Actors appeared to continuously question the legitimacy of how much effort should be invested in order to master and benefit from a new technology. The two instances extracted from Rachel's interview highlight the effort that went into mastering Facebook and her new Samsung Omnia. Switching from Hi5 to Facebook was '*a bit'* difficult. She found switching to a Microsoft phone as *'annoying'* and she eventually abandoned the device.

Rachel	*It was very difficult… to understand. Compared to Hi 5, I remember, it was more difficult. They are still updating to date.*

Rachel	*It had Microsoft in it…. Everything small…. It started to malfunction… It annoyed me a lot.*

In many instances, disruption and effort were perceived as too costly to warrant the behaviour. In the example below Yvonne and Roberta imply that the effort for parents to upgrade to a more sophisticated phone was not worth the effort.

Yvonne	*Like mum and dad*
Interviewer	*Like your mum and dad?*
Yvonne	*No but for them it's good*
Roberta	*The essentials they need - just sending a message. If you say 'I need to call', you call and send messages. Just communications.*

From the outset Josephine had difficulty understanding how to use LinkedIn, and as a result she formed a negative attitude, '*stupid',* towards the application. She assumed this position admittedly without attempting to acquire further *facts*. She did not

consider LinkedIn as worth the effort. Keith echoes Josephine's position with a different technology saying that he is not willing to switch the keypad (T9).

Josephine	*But now I will remove the account because it is stupid. I can't understand how to use it. And I haven't tried to learn.*

Keith	*I do not have the patience to waste time fiddling. I am used to qwerty keyboard, but it's too troublesome to go back to that.*

Mauro, below, explains that after trying out Android, he discovered that it had features that were too complicated and which ultimately added very little. He claimed that switching to Android and learning a new operating system was not worth the time and the trouble.

Mauro	*But I do not even know how to use its functions. For example, I was using my wife's Android… I was closing her running applications. I closed the applications that connect her contacts with phone calls and now, if I call her… 'Mauro' no longer appears. [Only] the number appears! Now, why would I want to switch that off? The iPhone does not give you the option to switch that function off. That is the one for me. I do not need such complication.*

Actors also argued that technological changes tend to happen slowly and outside an actor's control. Such changes induce disruption and a need to learn more. Actors questioned the worth of investing in effort to comply and adapt to change. Aldo and Matilda expressed frustration at finding that Facebook had changed once more. In contrast, Andrea perceived the novelty as a *pleasure consequence*.

Matilda	*No. This morning when I woke up, I said 'Look… They changed again the Add a Friend'. I was unimpressed. This thing annoys me.*
Andrea	*Although I do like this a bit; every so often they change the design.*
Annabelle	*Until you get used to it.*
Andrea	*If it annoys you… The fact that they keep changing…*

The S*afety sub*-category emerged as actors' perceived potential harm as a consequence of adopting or using the technology. In the examples below Alessia and Marthese expressed their concerns about exposing too much about themselves, which in turn could potentially expose them and their family to theft, child grooming and employment related risks, respectively.

Josephine	*If for example we went abroad… Yes if we went abroad - 'Off to Sicily with friends'.*
Alessia	*But if I live alone, for example, I wouldn't do that because it's a safety issue.*

Marthese	*I use it a bit on Saturday evenings. Photos, actually very little. I do not upload photos that tag me. I do not upload photos of the little one as much as possible and had an argument with every person that uploads the face of my child. I will be honest… I fought even with my own family. I asked them to remove everything from there now. You have to pay attention to the information you upload - I see it very important, especially if you upload photos at the time when you are supposed to be at work. Some things you upload, I mean, during private activities. You can never know what can haunt you in the future. I think you have to be very careful how you use it. A lot.*

5.1.1.2 Sources of information

Data show that beyond direct observation, actors acquired information about technology through two external sources: *media,* and *Word of Mouth (WoM)*. Data corroborates the Bass Model (Bass, 1969) and hence the same terminology is used. The term *information* here refers to any *facts*, *attitudes* or *consequences* available in the environment. Actors acquire *information* to form *awareness*.

i. *Media*: Actors identified *media* as an important source of information and references included celebrity lifestyles, advertisement through various modes, and availability of general information. In the example below Aldo and Astrid have used the *media* to conduct 'extensive research' prior to buying a smartphone. Peter on the other hand outlined how an *attitude* proposed in an advertisement conflicted with his own held *attitudes*.

Aldo *I have an HTC Wildfire S. I bought it after having done some extensive research about mobile phones.*

Astrid *Well. I wanted a substantial change from the mobile I had previously - the Nokia E5. I wanted a proper smartphone. Then I said to myself that if I am going to change my mobile… I will do it the proper way! … I used to spend a lot of hours searching on the internet to find out.*

Peter *… the point made by that advertisement is that everyone should have a Mac. That is why it is presented as trendier. However, it's the other way round. You would see a businessman with a Mac…*

ii. *WoM*: All interaction captured in data, through which actors shared elements of *awareness with others,* qualifies as *WoM*. In the below examples Astrid relayed to other actors information she obtained by *WoM* from others who had experienced the 4S.

Astrid *I asked them 'What should I go for?' They told me to go for the Galaxy S3.*

Astrid *they mentioned the screen, the different applications….*

The value given to *information* shared via *WoM* appeared weighted according to its source. Actors valued *information* that came from sources they considered knowledgeable and trustworthy. In the example below Annmarie explained why she thinks the iPhone is better by referring to what her brother told her.

Annmarie *According to my brother, who knows something about IT… told me that these have… I do not know the exact word… an operating system?*

5.1.2 The actor situation

Consequences, unlike *facts* and *attitudes*, emerged as context specific and reflected an actual or predicted situation. This section explores the user situation, what it entails and how it appears to influence consequences and behaviour. In the example

presented below, Rachel outlines the context that induced her to acquire an iPhone. She mentions *facts* attributes, such as make, popularity and price, and *attitudes* such as cool and expensive. However, her behaviour and resulting predicted *consequences* are anchored to her context of peer pressure experienced at the time of purchase.

Rachel	*I think it was the market… everyone was saying iPhone4! iPhone4! iPhone4! iPhone4!; and it was the cool gadget to have… I think.*
Interviewer	*Did your friends have an iPhone4?*
Rachel	*Yes. We bought it together.*
Interviewer	*I think it was quite expensive compared to other mobiles.*
Rachel	*Six hundred Euro…*

Three types of actor *situations* emerged from data namely *(*i*) environment* situation – events taking place in the environment; (ii) *internal* situation (emotion) – referring to an internal private feeling; and (iii) *access situation* – being the actor's disposition of resources enabling the adoption and use or otherwise of the technology. Finally, *need beliefs* emerged as actor conviction that the coincidence of the internal and external situation merits the emission of a specific behaviour. In the example above by Rachel, all three situations were observed as follows:

i. *Environment situation* – the iPhone was very popular and all her friends bought it together;
ii. *Internal situation*(Emotion) – The iPhone is a *'cool'* gadget implying both a hedonic aspiration and a need to comply with group norms; and
iii. *Access situation* – Costs six hundred Euro implying to be very expensive and limiting her ability to own it.

The *environment situation* emerged as the external context that typically triggers behaviour. Actors emerged as mostly independent from the environment and having limited control over the events that shape it. Therefore, their behaviours constituted of reactions to changes in their situations. For example, some actors reported adopting and using a specific brand of smartphone because the technology was given to them as a gift. Sometimes, however, the *environment situation* was shaped by the consequences of earlier behaviours emitted by the actor or others observed. For example, by starting to work in a hospital some female actors from group 4 could no longer carry handbags, and needed a smartphone that fits in a trousers pocket.

Table 5.5 - Examples of *environment situations*

Actor	Behaviour	Environment situation
Rachel	Bought Samsung Omnia	She broke her iPhone by accident
Sandra	Switched to smartphone.	She was given a Samsung Galaxy X as a gift.
Alessia	Switched to smartphone.	Her father bought her an HTC desire.
Josephine	She started to use a Galaxy Y	Was included for free in service by mobile operator
Marthese	Changed her mobile to HTC	Given to her by her husband. Must be compatible with husband's smartphone and PABX system.
Maryrose	Seeking a smaller phone	Starting a career as a medical doctor and cannot carry a handbag in hospital wards
Eleanor	Sought privacy on Facebook	Being a teacher she needs to maintain distance from students
Aldo, Analise	Adapt and get used to Facebook updates	Facebook changed the Add Friend feature
Alessia	She would not post travel updates on Facebook	She lives alone (fears for her safety)
Sandra	Deactivated Facebook	Needs to stop 'wasting time' and to start studying
Josephine	Will buy a mobile with large memory	She needs to continuously delete 'to keep the essential' on her current mobile
Alessia	Activated calendar functionality on smartphone	Opportunity to synchronise with Gmail and have appointments easily accessible

The *Internal situation* (emotions) emerged as an internal state or propensity in relation to a particular behaviour. The *internal situation* was experienced privately and subjectively but could be shared via verbal behaviour. Instances of *internal situations* observed in this study included gratification, enjoyment, curiosity, fear of harm, discomfort, boredom, feeling important and humiliation. The internal situation, as discussed later, can be interpreted as an internal mechanism that regulates one's satiation and deprivation in relation to the emission of behaviour.

Table 5.6 - Examples of *internal situation*

Actor	Behaviour	*Internal situation*
Darren	Posts in Facebook	Seeks '*gratification*'
Dylan	Acquired Samsung Galaxy S3	Feels a *'sleeker' being the* first amongst peers to own technology
Astrid	Checking Facebook without a specific purpose	Enjoys herself getting to know about new things and exploring promotions
Andrea	Experiencing new technology	Likes seeing and experimenting with new technology; feels confident using new technology
Peter	Using technology to communicate	Feels uncomfortable staying without technology for more than two hours
Aldo	Buying a BlackBerry	Feels like a businessman
Martha	Owning a 'cool' mobile	Feels good owning a cool mobile
Annmarie	Buys a pink LG GW300	Likes the nice design
Andrea, Steve	Would not use Nokia 3110	Feels uncomfortable because of image
Stella, Roberta	Would not use Nokia 3110	'*Feels humiliating'* and '*stupid*', Feel like '*sixties*'
Analise	Uses Facebook frequently	Feels bored when there is nothing to watch on television
Karen	Reads online news	Feels bored on the bus with nothing to do
Roberta	Uses Facebook habitually	Feels a need to know what is happening, *'about people'*, what *'friends are doing'*
Sandra	Delayed study by chatting on Facebook	Enjoys chatting on Facebook despite a need to start studying
Alessia	She would not post travel updates on Facebook	Fears for her own safety
Marthese	Would not allow anyone to post pictures of her child on Facebook	Fears for her child's safety
Stephanie	Uses Facebook	Is curious and needs to '*spy and gossip about people*'
Aldo	Buy BlackBerry phone	Feels a need to portray himself as an important business person
Loraine	Use Facebook	Feels a need to '*stay in contact with friends'* which she does *'not see so regularly*'

Accounts of need beliefs emerged when actors seemed to take into consideration both their *internal* and *external situations* and developed beliefs that a specific behaviour emission would result into positive consequences. Table 5.7 below highlights examples of *need beliefs* extracted from data. Most *perceived needs* emerging from data are linked to utility needs such as a need to organise contacts more effectively, a need to use the Internet throughout the day, and a good camera to be available at all time. Other examples refer to social needs such as a need to convey a professional image. Other needs may relate to constraints resulting from the environmental situation such as the physical technology must not be large or that it must feature a large memory. *Need beliefs* are not to be construed as behavioural intentions. Actors often held *need beliefs* but no adoption or use intention because their *access situation* did not permit the behaviour.

Table 5.7 - Examples of *perceived needs*

Actor	Behaviour	***Perceived need***
Keith	Adopts a smartphone	Needs a camera, Internet, buy apps to play and more
Maryrose, Josephine	Bought Smartphone	Need to carry a medical reference book all the time
Peter	Use LinkedIn	Needs to keep business contacts organised and handy
Peter	Did not buy Samsung S4	Needs phone that fits in pocket
Reuben	Use LinkedIn	Need to connect with people doing business
Stephanie	Chose iPhone	Needed a smartphone that synchronised with her iPad
Steve	Got a smartphone	Needed to '*use the internet, data and a number of other applications*'
Valerie	Would not buy a Samsung Galaxy Note 3	Needs something that is not '*ridiculously huge*' and which *'wouldn't fit into anyone's pocket*'

The *access situation* emerged as the actor's disposition to adopt and use the technology. Whilst actors might perceive a '*need*' for an iPhone, their financial disposition might have limited their ability to purchase one. Equally, LinkedIn might appear too complicated implying risk and disruption in terms of learning time to master. Table 5.7 highlights examples of *Access* situations identifying the price, ease of use, time, risk, capacity, and patience as examples of access limitations.

Table 5.8 - Examples of *access situation*

Actor	Behaviour	*Access Situation*
Rachel	*Bought a Smartphone from abroad*	*Could not afford to buy the smartphone from Malta because it was too expensive*
Julienne	*Bought an unbranded smartphone from Vodafone*	*It was the only mobile phone she could afford at the time*
Josephine	*Will close LinkedIn account*	*Too complicated to master*
Dorianne	*Just using the basics of her Smartphone*	*Not being technology savvy she does not find the time to understand its full functionality*
Analise	*Bought a Galaxy Ace*	*Best technology she could buy for the money she was ready to spend*
Keith	*Bought HTC wildfire*	*Best compromise between specs - 'mid-range' and budget - 'not too expensive'*
Yvonne's mum and dad	*Using a simple phone*	*Their age does not permit them to learn complex technologies (Implied) and need just essentials*
Keith	*Will not use T9 keyboard*	*Does not have the time and 'patience' to switch to a non qwerty keyboard*
Andrea	*Bought an expensive smartphone*	*Unless he did not benefit from student smartcard that included a government grant he would not have bought it*

5.1.3 Types of overt behaviour

In aligning to an operant explanation of behaviour, focus was placed on overt behaviour and their consequences. Interviews did not offer a direct means to observe adoption and use behaviour, nor their consequences. Rather, evidence was sought through actor accounts of past or hypothetic behaviour. Data showed that ICT adoption and use comprises of a complex combination of simultaneous and mutually dependent behaviour emissions. Overt behaviour emerged in five subcategories as follows:

i. *Tool use behaviour* - the manipulation of the ICT as a tool to achieve a goal and/or enhance performance such as pressing the correct sequence of buttons on a smartphone;

ii. *Application use behaviour* - the behaviour for which the application has been applied mostly within a social interaction context such as chatting and messaging;

iii. *Status conveying behaviour*–emissions that implicitly or explicitly conveys identity and status;

iv. *Adaptation behaviour* – behaviours that entail the learning of new skills and the discontinuation of prior habitual behaviours; and

v. *Purchase behaviour* – the financial commitments and opportunity costs made as part of the adoption and use behaviour.

The five behaviour categories are each briefly discussed below.

Tool use behaviour reflects instances where actors used the technology as a tool to achieve a specific goal (the application). *Tool Use* behaviour was observed in either of two types namely *adoption*, and *continued use*. *Adoption* refers to the initial engagement, when an actor makes the initial engagement and starts using the ICT, thereafter repeated usage will become habitual. Table 6.9 below outlines examples of *Adoption* behaviour.

Table 5.9 - Examples of *adoption* behaviour

Actor	Data
Dylan	*I have a Samsung Android. I chose it because…*
Mauro	*I have an iPhone. I have an iPhone because…*
Alessia	*HTC Desire. I have it because my father paid for it…*
Marthese	*HTC. I have an Android. I had no choice as my husband bought it for me…*
Stella	*I have [a Facebook] account.*
Rachel	*I had to make a Facebook [account].*

Data show that *adoption* behaviour was preceded by a process of building *awareness* through the gathering *facts,* formulating *attitudes* and projecting potential *consequences*.

Aldo *...I had bought it after having done some in-depth research about mobile phones, and I wanted an Android, and not an iPhone. Therefore, in future, if I have the time, I will be able to build applications that I myself can programme.*

I chose this model specifically because, it was good value for money, for specifications, and, like Astrid was saying, I also wanted a good camera. As well for the price which was really good.

Continued use, on the other hand, emerged as the use of technology at post adoption phase. Unlike *adoption*, *continued use* appears to necessitate a lesser level of mental *engagement* as actors implied that their behaviour was automatic in specific situations. Table 5.10 blow presents examples of *Continued Use Behaviours*.

Table 5.10 - Examples of tool use behaviour

Actor	**Data**
Astrid	*I am on the Arriva(Bus), I am waiting somewhere, I just go on the internet immediately.*
Aldo	*The Internet I do not use so much... It is more the camera that I use...*
Astrid	*I go on [Facebook] frequently. Every now and then I need to go to check.*
Eleanor	*I hid her [profile] so that I will not continue to see her [posts].*
Andrea	*We went to the beach and took a photo.*
Stella	*I enter [my Facebook account] ten times after work.*
Maryrose	*... she posts on everyone's feed.*

Application behaviour refers to the goal objectives for which the technology was applied. Unlike other tools, ICTs serve for many purposes and can be applied in different communications contexts. As noted in Table 6.11, instances of *application behaviours* include learning, talking, socialising, and informing oneself. Whilst actors could have still communicated with peers without the use of the technology, ICT served to help them achieve their communications goals more effectively.

Table 5.11 - Examples of application behaviour

Actor	Data
Andrea	*we use Windows, even in schools to teach.*
Aldo	*I used [Facebook] for chatting.*
Matilda	*I use [Facebook] basically…. to spy on people.*
Andrea	*I use [Facebook] a lot to contact my friends.*
Eleanor	*Facebook - to maintain contact with friends.*
Sandra	*I talk to everyone.*
Mario	*I [use it for] newsfeed, work group and school.*
Roberta	*I enter Facebook to get to know people, to learn what your friends are doing.*
Josephine	*…if we went on holiday I post… "Off to Sicily with friends!"*

Status conveying behaviour emerged from data as instances where actors or other third persons, irrespective of the *application,* and mostly tacitly, communicated their identity and social status aspirations. Examples in data included affluence, image, power, popularity and skills were exhibited. In contrast to other behaviours, actors showed a level of difficulty in explaining behaviour that falls under this sub-category. Whilst actors appeared very sensitive to behaviours emitted by others, actors were mostly unaware of any such behaviour emitted by themselves. Table 6.12 presents examples of actors passing judgments on the legitimacy of status conveying behaviour emitted by others observed.

Table 5.12 - Examples of *status conveying behaviour*

Actor	Data
Eleanor	*But there is that element, 'listen… I am better than you'. Or if I am going to open a business, 'listen, let me show you'.*
Astrid	*Even to state, 'I have an iPhone 5!'*
Peter	*Many people, I see, it's like it's a status symbol. Like 'I have an iPhone'.*
Matilda	*The first time that Obama went out [for politics], He always used… photos of himself with a BlackBerry, so he conveys an image that he uses social media.*
Matilda	*And they keep the mobile in their hand to show off!*
Peter	*I see people, who whatever happens to them in life, just share with all the world.*
Eleanor	*There are many stay-at-home mums…. They start posting everything that their baby is doing.*
Valerie	*To show to themselves and other people that they have a boyfriend.*

Adaptation behaviour included other unrelated behaviour that had to take place in parallel to adoption. It captures the actors' efforts to learn the skills (*method*) needed to start using the technology effectively, and the disruptions that actors needed to deal with. This behaviour also captures data of switching and discontinuation.

Table 5.13 - Examples of *adaptation behaviour*

Actor	Data
Andrea	*Now even children, everyone is doing ECDL, they got used to Windows… so they'll find it difficult.*
Aldo	*I know how to use it well but Facebook… they tend to change the settings very often.*
Annabelle	*Until you get used to [Facebook changes]*
Rachel	*…we had made Hi5 and we got used to it. It's like – how can we make [a] Facebook [account] now? Will we keep going on this way year after year? Always with something new? It is a bit difficult at the beginning….*
Keith	*I am used to things like QWERTY keyboards (Implying an effort to switch to a T9 keypad).*
Darren	*I am used to it…. smartphone with a touch screen (Implying an effort to switch to a BlackBerry keyboard).*
Mauro	*The facility to change to the next. If you have an Android it is a feat to shift the contacts to the other one.*

Purchase behaviour emerged as a distinct behaviour and relates to the financial commitments actors made in relation to use and application. Not all *behaviours* required a purchase. Facebook is a free of charge service as one example. Smartphones, on the other hand, feature both an initial cost related to the buying of the device, and a monthly connectivity subscription. Examples of purchase behaviour are presented in Table 5.14.

Table 5.14 - Examples of purchase behaviour

Actor	Data
Karen	*They buy everything [Apple] that comes out*
Karen	*I am on student offer… that means that I pay a certain [monthly] amount.*
Aldo	*I had bought it after having…*
Roberta	*You bought it for LM250 (old currency).*
Dorianne	*It was free with the data package. There was a selection of other smartphones.*

5.1.4 Evidence of internal events

This subsection explores data instances where actors were observed perceiving the environment around and forming *awareness* through the acquisition and maintenance of *facts* and *attitudes*, and by projecting consequences on past or hypothetic behaviour. The formation and maintenance of *awareness* elements is hereafter referred to as *internal events*. Data provide various occurrences where actors were observed forming or updating *awareness* elements as a direct result of verbal interaction with peers within the focus group. Actors were also indirectly observed claiming to having formed or changed *awareness* elements as a result of past experiences or observations.

Actors appeared to develop *awareness* through prior experiences. Throughout interviews actor continuously referred to own past behaviours and exposing acquired elements of *facts*, *attitudes* and *consequences*. For example, Matilda learnt that the S4 is much lighter compared to another older smartphone model. As a result she appeared to develop a more positive attitude towards the S4.

Matilda	*Yesterday I noted that that one is very light when compared to the other mobile.*
Astrid	*That's what she said. True!*
Matilda	*In fact the weight of this is much lighter than that one.*
Loraine	*Even than the Samsung Ace.*
Matilda	*Ace… I do not know.*
Loraine	*I think it is heavier.*

In the examples below, Dylan and Roberta outlined the c*onsequences* of their past behaviours. As a result of the outcome Roberta appeared to have confirmed *attitudes* she held towards the technology. Dylan, on the other hand, as a result of his experience appeared to have reviewed and changed his *attitudes* towards the iPhone.

Roberta	*I have an iPhone. I chose the iPhone because I like the way it works and, as Mauro was saying, I do not feel the need for anything more than what the iPhone offers. It never blocks, I never needed anything more, and all I ever wanted to do… I have managed to do.*

Dylan	*I have a Samsung with Android. I chose it because I had an iPhone before and I now discovered that you can do much more with an Android than what people with an iPhone can.*

Throughout interviews, actors frequently discussed hypothetic situations, past or future. Actor's apparent reflection on behaviour, as captured in data, provided an opportunity to expose how actors projected potential behaviour consequences by combining *facts* and *attitudes* and applying these to a specific *context*. *Internal events, therefore,* emerged as a means to aggregate the objective and subjective information and to project consequences without a need to experience. Actors appeared to construct *consequences* through *internal events* basing on held facts and a*ttitudes,* and by factoring the specific *situation*.

In the example below, Peter considered *facts* attributes related to the dimensions of the Samsung S4, and his *Attitudes* related to the size of a smartphone. Peter projected that the S4 would not fit in his pocket as it was larger than the S3.

Peter	*If I had to buy a new smartphone, I would go for a one like Astrid's*
Astrid	*Go for the S4. Not the S3!*
Peter	*The only reason is that a mobile phone must fit in my pocket. That is too large for me.*

Interview sessions started by actors being asked to name the make of their respective smartphone and to explain their choice. The data generated from this discussion yielded rich examples of the rationality actors invoked in justifying their choices. In the example below, Andrea outlines why he opted for a Vodafone smartphone. He had a favourable *attitude* towards the particular model because it was affordable and '*simple*'. His particular *situation* that his previous mobile broke triggered a perceived need and thereafter an adoption. At that particular time Andrea expected that by acquiring a Vodafone smartphone he would be able to call, send messages and listen to music in a simple manner and without incurring a high financial setback.

Andrea *Mine is a Vodafone, I do not know the model (Laughter). Basically I bought it because the old one broke. And it had a good price; therefore, I looked at the price! I did not want to keep looking at the internet … because for me, I do not like having a screen this small. Even for the camera, I did not bother. The mobile is there just to call, send messages and most importantly, I have music. That means that I am not after specifications. The price is average. That is what I look at.*

Aldo wanted an Android device and not an iPhone because his situation required him to have an open source operating system. By opting for a sophisticated but good value Android device, Aldo projected that he would still be able to do programming without incurring a high initial cost.

Aldo *I have an HTC Wildfire S…. I do not want iPhones. And the reason is that the Android is open source, and in future, if I have the time, I can build applications that I program myself. Now, I chose this model specifically because it was good value for money for its specifications, and, like Astrid, I want a good camera. And for the price… this was really good.*

Data persistently show actors evaluating the performance of past behaviours by locating the consequences of their actions. Based on the outcome, actors appeared to confirm or change *facts* and *attitudes*. Indirectly, through actor interaction, actors were observed engaging in a process whereby pre-behaviour projected *consequences* were contrasted against actual *consequences,* observed and experienced. Discrepancies appeared to trigger a process whereby actors re-evaluated *facts* and *attitudes*. Data show that experience served to enrich *facts* whilst *attitudes* were confirmed or rejected as new ones formed.

In the account below, Stella indicated that an expected consequence was confirmed and enforced. Stella switched from Nokia as she wanted something more sophisticated. She seemed very satisfied with the iPhone as her expectations were met.

Stella	*I used to have a Nokia phone. But it was very basic when compared to the iPhone. For now I do not find anything to complain about. I cannot compare as such, say with a Samsung - I cannot say. However, as my husband has an iPhone, obviously, it's better for me to own an iPhone. For now I am happy with the iPhone and have nothing to complain about.*

Rachel, on the other hand, outlined her experiences with three different smartphones namely the iPhone, the Samsung Omnia and the Samsung Chat. Rachel broke her iPhone just after few months after buying it and needed a replacement. Not having the money to buy another iPhone, she opted for a cheaper model. She bought the Samsung Omnia running a Windows operating system. She had difficulty mastering its complex interface and immediately developed a negative impatient *attitude* towards it. She gave up and discontinued its use by opting for an even cheaper device, the Samsung Chat, which she perceived as inferior because it is a '*normal one*' and '*not a smartphone*'. However, despite the limitations of the device, she still changed her mind and eventually developed a very positive *attitude* towards it because it had '*everything*' and was simple. She claimed that if in future, if she would have the money, she would revert back to an iPhone because she considered it as '*a different thing*', something that is '*easy to use*'. This account demonstrates how *facts* and *attitudes* matured as Rachel experienced different technologies. This account provides a series of *attitude* maintenance processes based on expectation and experience episodes.

Rachel	*Samsung… It's not a smartphone… I always forget… It's Samsung Chat*
Interviewer	*Is it a new model?*
Rachel	*One year old.*
Interviewer	*Why did you choose that mobile? Why did you switch from a Samsung Omnia to…*
Rachel	*Because it ran Microsoft… Everything was small… It started to malfunction. I hated it.*
Interviewer	*Has any of you switched to another mobile phone that…*
Rachel	*A normal one. Not a smartphone*
Interviewer	*Does it mean that you do not have Facebook on it?*
Rachel	*I have Mobile Facebook on it… I have everything.*
Interviewer	*You have mobile Facebook, and … Do you feel you went for the better or the worse with it?*

Rachel *For the better.*

Interviewer *Therefore, if you opted for a device that is not a smartphone... what is the difference?*

Rachel *Between a smartphone and an ordinary one? I think that a smartphone has more things. GPS - the map as well. You can check on your mobile, as well, where you are... if you have internet. I think a smartphone is more complex.*

Interviewer *I think you do have internet on that mobile.*

Rachel *Yes. Yes.*

Interviewer *What is that you don't like about your current mobile?*

Rachel *I like it a lot.*

Interviewer *If you had to change it and you did not have money limitations, what mobile would you buy?*

Rachel *The iPhone.*

Interviewer *Why an iPhone?*

Rachel *Because I used to have an iPhone and it was very user friendly; and you do not need to keep entering into loads of user settings and so on. It is somewhat very simple to use.*

Interviewer *Why did you switch from an iPhone to an Omnia?*

Rachel *Because it broke... I dropped it.*

...

Interviewer *How did it feel the first week you bought the Omnia?*

Rachel *Nervous.*

Interviewer *Why?*

Rachel *It had so many things. I used to lose my temper.*

Interviewer *Was it complicated?*

Rachel *A lot.*

Interviewer *And do you think because you had the iPhone before?*

Rachel *Possibly.*

Interviewer *And how did it feel the first day when you bought the new mobile?*

Rachel *All right. I liked it.*

Interviewer *Do you feel you went for the better or worse?*

Rachel *No. Much much better with it.*

Interviewer *And how do you compare it with the iPhone?*

Rachel *Incomparable. It is completely different thing.*

Interviewer	*You mean you would go back an iPhone?*
Rachel	*Yes if I have the money.*

In the example below Steve outlined his experiences with iPhone and Android Smartphones. When Steve first considered adopting a smartphone, his first choice was the iPhone. His choice was driven by his previous experience with the iPod and his sense of belonging to the iPhone family. Using it he learnt that the iPhone was not flexible enough for his needs. When Steve talks about his current Android smartphone, the Samsung Galaxy, he identifies a number of factors which limit his performance. His account provides examples where both *facts* and *attitudes* about the Samsung Galaxy changed after experiencing it. For example he became aware that the battery life is a problem. Furthermore, his experience and evolving *understanding* appeared to shape subsequent decisions such as for example his intent to buy a Samsung Galaxy 2 because of battery life. His *situation* also limits his behaviour as for example his contractual commitments limit his ability to switch to a newer smartphone.

Interviewer	*What is your mobile?*
Steve	*Android smartphone Samsung Galaxy S*
Interviewer	*Is it a new model?*
Steve	*It is a new model.*
Interviewer	*Why did you choose this model and not another one?*
Steve	*I wanted a smartphone that allows me to use the Internet, data and a number of other applications. I tried the iPhone before but because of the lack of flexibility, not using open source for applications.*
	...
Steve	*As a technology, I think the battery is a big problem. As you know, data and the screen use a lot of battery.*
Interviewer	*You said that you like this more than the iPhone. Why? What makes it better?*
Steve	*I think the iPhone, once you own an iPod you become part of the Apple family. I had an iPod and I think it was natural that I buy an iPhone. However, when I got the iPhone and I started to see what applications they have, I found that most of the applications had to be found on the iPhone market. They have to be stable and approved. I saw this as a limitation. I am a fan of Google and one of the things of Android based phone, as the market is growing at a fast rate and some are saying that the*

	open source will one day dominate the market.
Interviewer	*Is there a model that you would prefer than the one you have?*
Steve	*Yes the Galaxy 2. The screen is sharper, slightly bigger, it is faster and the battery…*
Interviewer	*And why won't you upgrade?*
Steve	*It is not possible as I am on contract.*
Interviewer	*How much would you normally pay for a mobile phone?*
Steve	*I think I would pay up to €500*
Interviewer	*Is that justified?*
	Very justified because [I use] the mobile phone for work…. Many times when I go home I end up using the telephone [Smartphone] and not the notebook… and I think they are becoming very strong substitutes.

Alessia, after experiencing some months using her smartphone, expressed her dissatisfaction with its internal memory vouching not to repeat the same mistake in the future. Following this experience Alessia had formed strong negative *Attitudes* towards smartphones with limited memory.

Alessia	*I would definitely make sure that it has a rather large internal memory because this; the only thing that I regret in it – the internal memory is small. You know? Once bitten… so that would definitely be one of the most important factors for me.*

Peter implied that being too 'open' on Facebook can be harmful. Basing on negative consequences of own past experiences he has formed *attitudes* towards posting too much on Facebook.

Peter	*I have Facebook and I am very active. However, as already mentioned by someone before, I do not know who… I have also changed the way I use it. I used to post much more, I used to be much more open. Someone would go on Facebook to learn what is happening. But then I learnt that it is a privacy issue. I still know people, everything that happens in their life, they share with the whole world.*

In the above examples, the building and maintenance of *awareness* has been attributed to experienced consequences. However, data also show actors engaging in *internal events* and testing different behaviour scenarios and projecting potential consequences outside of actual behaviour. Based on the formation of *such projected consequences* actors appeared to from or maintain awareness even when no behaviour was emitted. I*nternal events* appear to have enabled actors to test different hypothetical behaviour scenarios and based on projected *consequences*, change or develop new *attitudes*. For example, Yvonne below talked about mobile covers. Discussion was prompted by a diamond covered iPhone (Appendix 5 Exhibit 1.2) which she considered expensive. She attempted to rationalise on the amount she would be ready to pay for a cover. Whilst she argued that a two thousand Euro price tag would be legitimate for a diamond covered smartphone, she acknowledged that her specific situation does not warrant such a purchase. However, she expresses herself willing to pay 100 Euro for an attractive back cover. Yvonne appeared to be forming new *attitudes* at the same time she was talking.

> Yvonne *I bought it for one dollar. Now. Listen. For me it is expensive, let's put it this way, this is expensive. For example, if mine costs six hundred, and I get it with diamonds, it would cost me one thousand five hundred or two thousand… more. Let's keep our feet on the ground. For me, I do not think it is worth. But if it was just one hundred Euro more, then I would buy it.*

Actors also appeared able to project *consequences* in hypothetical *situations* different from theirs. Yvonne further explained that whilst she found no immediate need for LinkedIn, she still held a positive *attitude* towards it should her *situation* change in the future.

> Yvonne *Let me put it this way. No, I do not feel the need for it. Because as they said, I see it more - businessman. To have more connections related to work. For now I do not think I need this… I am not saying that in future I won't get it if I need it, but for now, no.*

Data also show examples whereby actors held conflicting *facts* and *attitudes* towards particular technologies. Actors appeared to take consideration of all relevant *facts* and *attitudes* and appeared to engage in resolving conflicts by rationalising on the best

potential outcome. Dorianne showed a positive *attitude* towards owning '*a more modern phone'*, as it provides '*more functionality*'. However, she ultimately expressed herself in favour of a simpler phone that can just '*call and send SMSs'*.

Dorianne	*I would prefer a more modern phone but to use that type of phone I would not mind as long as I managed to call and send SMSs. For me it should be enough. Obviously having this smartphone gives you… provides you with more…. obviously it is much better having this smart phone but…. it is not a must.*

Loraine and Astrid below agreed that the iPhone was expensive but also *'robust'*. Both held negative and positive *attitudes* toward the technology although they seemed to agree that being '*robust*' outweighs the high cost.

Astrid	*It's as if we say to ourselves that we want something robust. Then, you no longer look at the price. It's like you go straight for them.*
Matilda	*And you disregard the price. You say - 'That does not matter as it's robust; it's going to last'. That's how I see it.*
Loraine	*If you are after something very specific….*
Matilda	*And that will last.*
Loraine	*Price is no longer that important.*

Likewise, whilst Roberta and Stephanie considered the iPhone as expensive, they also looked at other consequences. Whilst the iPhone was perceived expensive at 600 Euro, especially when compared to other models, they still felt that the positive consequences enabled by its features outweighed the cost.

Interviewer	*Is it expensive at six hundred? How do you see it?*
Roberta	*I do not think it is expensive for its functions… compared to mobiles we used to buy before and that did very little. Is that true?*
Stephanie	*Depends on how much you need it.*
Roberta	*But compared to earlier mobiles, the limited functions, I do not know, different ringing tones, and maybe some colour. You bought it for LM250 (old currency). This can do things many times over. And still costs almost the same.*

Yvonne *But if you just need, [for] example to read a message or to call, for me it will still be expensive.*

Actors also projected conflicting *consequences* for the same behaviour. The examples below show actors being faced with both advantageous and disadvantageous *consequences* for the same behaviour. For example, whilst the versatility of smartphones was perceived as adding utility by most actors, a number of female actors from the group four considered that a very large device, whilst being a helpful work tool, it also presents portability issues.

Valerie *I would also buy a Samsung because these seem to be the best, at the moment. Except for the Note 3 because it's ridiculously huge and it wouldn't fit into anyone's pocket. I'd go for a small one.*

Maryrose *I am a bit uncertain because at the beginning I did not want a smartphone. Unfortunately smartphones are a bit big, and in a pocket, especially a woman's, they do not fit comfortably... even if we have handbags. But on a ward run. It is difficult to carry a handbag. I do not know - I think I will keep it.*

Andrea appeared confused on what and how much to disclose on Facebook. He recognised both the negative risks related to loss of privacy, and the fun and social exposure gained in sharing his experiences with friends. Through discussion Andrea recognises his conflicting views and appears to form new *attitudes*.

Andrea *I agree that there are some privacy issues... of course. Especially if you are going to have your profile public. You do not want to show all the rubbish. Then, if something happens, I am not going to keep away from posting on Facebook. Don't know - 'I went with the Kayak'. I put a photo of myself with the Kayak. I do not need to be ashamed of saying where I went, with whom, etcetera. What I want to stay; while I want to retain privacy, I still want to say things that I do not need to be ashamed of [later].*

On some occasions actors felt that they did not have enough *awareness* to engage in behaviour. For example, Dorianne expressed her frustration at her limited understanding of Apple computers. She had heard from others that these are good

computers but she acknowledges her limited *awareness* and seemed to refrain from forming her own favourable *attitudes* for the time as she felt '*not sure*' and '*at a loss*'.

> Dorianne *I heard that Mac is better… I am not sure… I am really at a loss!*

Data also show actors delaying behaviour to allow for *awareness* to form through exposure and *internal events*. This was noted specifically in *situations* where behaviour entailed potentially substantial cost, effort, disruption and lack of safety.

> Aldo *I bought it after having done some in-depth research about mobile phones…*

Data also includes instances showing the formation of projected *consequences* and subsequent behaviour where the actor's level of awareness was limited. In the example below, Valerie moves ahead despite her lack of *awareness*. She never owned such a smartphone but knew, probably through observation, that it was 'very slim' and '*very light*'. She also held a very positive a*ttitude* that these were '*always very good',* as a result of WoM or media. Despite the limited *awareness* she still appeared determined to opt for an Apple technology.

> Valerie *It's very slim, very light. And they're very good… in my opinion, they're always very good. And I don't own anything Apple so I think I'd go for it.*

On some occasions actors appeared to hurry to form *attitudes* and project *consequences* missing on important *facts* attributes. The example below shows how lack of *awareness* about a luxury brand led actors to hold divergent *attitudes* and to project divergent *consequences* about a Mont Blanc branded smartphone cover. Annabelle and Aldo had no awareness of the brand and therefore saw '*nothing special*' about it that would warrant a high price. Andrea, on the other hand, who was familiar with the brand, acknowledged that a person in a different social circle, thus a different *access situation*, would value the cover more than them. The discussion was triggered by exhibit 1.10 (Appendix 5).

> Andrea *Depends how much you are ready to spend on a [smartphone] cover, do you agree?*

Annabelle	*And it has nothing special.*
Andrea	*For example, how much does it cost? Do you know how much it costs – approximately?*
Interviewer	*Do not have a clue.*
Aldo	*Example… Fifty Euro.*
Astrid	*Is it ten Euros?*
Andrea	*No two hundred.*
Astrid	*Two hundred?*
Interviewer	*I do not know.*
Andrea	*Could be. It has the brand name.*
Aldo	*I wouldn't even consider it. I'll buy a mobile instead.*

The data presented so far has mostly dealt with instances where actor awareness was formed through experience, observations and interaction. However data also presents situations where such logical relationship could not be inferred. Data also features instances where actors were observed holding strong *attitudes* towards specific technologies without a clear rational explanation or history to substantiate their position. For example:

Keith	*I am not such a fan of Apple.*

Loraine	*I don't know… I like it…. It has the looks… and even the…. It's good!*

When statements like the above were expressed, the interviewer persisted with further questioning aimed at exposing what might have induced actors to form such beliefs. Replies often included conflicting *awareness* elements and time pauses, implying that the actor was engaging in thinking and finding justification for held views. In the example below Karen rejected the iPhone because of its operating system. Few minutes later she found herself talking about her iPad, which she really enjoyed and liked. When she tried to explain what she liked about the iPad, the operating system cropped up once more – she realises that she contradicted herself since the iPad and iPhone share a similar operating system. She then attempted to resolve the conflict in her reasoning and shows an inability to justify her negative *attitude* towards the iPhone. In this example Karen appears to be reconsidering her earlier attitude about the iPhone.

Karen	*No, I am not so much for an iPhone*
Interviewer	*Why?*
Karen	*Not much…. Not because I do not like them but because I prefer Android.*
	…
	[Five minutes later]
Interviewer	*Ok. Now tell me why do you like that [iPad]?*
Karen	*Because I like its operating system and that [time pause]… Example you were referring to the other [iPhone], I like the one they have [iPhone], I like the iPhone. I might in future buy an iPhone as even when you take a photo, you can connect to…. a laptop. Everything transfers automatically.*

Data like the above seem to indicate that actors were engaging in *internal events* at the same time they were interacting in discussion. The above indicates that when actors identified gaps in their *awareness*, they reverted to forming new attitudes and *consequences* to fill such gaps.

Similarly, actors could not always immediately explain the rationality behind their past behaviours even if they considered that their behaviour led to a beneficial consequence. In the example below, Julienne was asked to explain why she chose her smartphone. She came up with a number of reasons after pausing to think. She concedes her uncertainty by concluding her intervention with '*I think that's all',* implying that other elements could have also conditioned her behaviour.

Julienne	*Ok. Actually I wanted to change it. As a brand I wanted HTC, like yours actually. Because mine is too slow. I wanted something faster. Wanted something bigger which is comfortable to text because this is too small and not that easy. I think that's all.*

Actors seemed to take time to rationalise and construct sensible logical descriptions that justify past behaviour. Whilst behaviours would have happened in the past, actors appeared to introspect and re-evaluate their behaviour to fill such gaps as they talked. This could imply that accounts such as Julienne's are incomplete, and potentially only reflect the level of *awareness* at the time of the interview and not necessarily at the time of the behaviour. Furthermore, such data might also serve as evidence for other elements that influence behaviour, but which cannot be captured through such

methodology. This means that such elements, despite contributing to behaviour, are not within the actor conscious *awareness*.

When actors recalled past behaviour, they appeared to be re-engaging in *internal events* that entailed rationalisation of event *consequences*, and maintenance of *facts* and *attitudes*. In the example below, Aldo claimed that he was no longer a frequent user of Facebook. However, as he is noted pausing, he revisits his position qualifying that despite the change in his behaviour; ultimately he was still a somewhat frequent user. Aldo appears to be changing and maintaining *awareness* as he reflects on his behaviour.

Aldo	*I do have Facebook and I have been using it some four or five years almost since it started. However, I have changed the way I use it. For example. In the past I used it a lot for chatting. Now chatting is always switched off. And I use it solely to communicate through groups - with my friends to plan what to do... or to go out... or to meet... Actually I do use Facebook often... I think I do use Facebook some four times a week. Not everyday...*

In the example below Steve tried to make sense of the way he uses his mobile phone. Steve was observed reflecting about his behaviour as he spoke. He was aware of potential inconsistencies in what he was saying and did indirectly ask the interviewer whether what he was saying was coherent.

Steve	*I try to control myself because if I had to look at the way I use the mobile... The primary use, I think, is to make a call. It only accounts for 20% of my mobile phone usage. I think I use my mobile phone [for] anything but for phone calls... you know. I use [it] as a computer, as an organiser, as an MP3 player...*

5.1.5 Behaving in a social system

Data show actors being highly interested in the behaviours of others, as well as, being sensitive of how others react to their own emissions. This section explores data related to how actors judged the behaviours of others in particular their reaction to *status conveying behaviour*. The section also explores actors' own status conveying behaviours and the feedback given by other observers.

A means through which actors acquired new *awareness* about ICTs was by observing the behaviour of others and judging performance. Andrea claimed that he '*likes'* the iPhone because his '*obsessed*' friend has one and is *'downloading all the time'*. Julienne, on the other hand considered the BlackBerry as '*bad*' because her father and brother had encountered many problems.

Andrea	*I like the iPhone because my friend has one and he is obsessed. He is downloading all the time.*

Interviewer	*What comes to mind seeing a BlackBerry?*
Julienne	*That these are bad.*
Interviewer	*Julienne is saying that these are bad? Why Bad?*
Julienne	*Because my brother had one and it gave him a lot of trouble. My father had one too.*
Interviewer	*What type of problems?*
Julienne	*The connection. Once I remember there was quite a global problem with the connection… I remember … and many people complained.*

As shown in the above examples, actors not only observed the behaviours of others, but went further to interpret and evaluate the *consequences*. Actors appeared able to *reflect* on the behaviours of others and based on the outcome they enriched their own *awareness* by acquiring new facts and forming attitudes. Andrea developed a positive *attitude*, '*likes*', towards the iPhone and Julienne developed a negative *attitude*, '*bad*', towards the BlackBerry by observing others.

Actors also showed an ability to project themselves in the *situation* of others even when this was considerably different from theirs. The following discussion concerns a technology that does not appeal to any of the actors, the old Nokia 3110. The discussion was triggered by Exhibit 1.5 (Appendix 5). Actors were able to associate positive *attitudes*, '*durable'* and '*easy to use*', that may not be important for young, technologically savvy students. For example, Keith thinks that his grandfather would experience positive *consequences* if he uses the Nokia 3110 because it is simple yet useful enough for his basic needs. Similarly Karen feels that her boyfriend would benefit from such a phone in view that he is mostly uninterested in sophisticated technology and is very careless with his possessions.

Interviewer	*Do you know this? Do you know the number?*
Karen	*Nokia 3310.*
Interviewer	*What can you tell us about it?*
Mario	*Durable.*
Karen	*It's good for those that do not take care of their mobile.*
Keith	*It has the basics. If you do not want to buy a mobile that is a smartphone, or you just want to call, it is ideal.*
	…
Interviewer	*Do you know anyone who has a mobile like this? Who?*
Lawrence	*My mother's husband.*
Keith	*My grandfather.*
Claudette	*My father.*
Karen	*My boyfriend.*
Interviewer	*Your boyfriend? The same one who bought you an iPhone?*
Karen	*He does not like technology. Because he breaks [gadgets].*
	…
Keith	*He knows that ultimately he does not need to waste money on smartphones and so. He bought one for his needs. Just his needs… like messaging and calling only.*

In the example below Sandra claims that others might be more affluent (*access situation)* than her, and that they can afford technologies that she cannot. Sandra further appears to acknowledge that her acquaintance is experiencing enjoyment as a *consequence* of being a *'fan'* of the technology.

Sandra	*For example, I know someone in our circle - he works hard and is well-off. Every Apple gadget that comes out, he buys it. Everything. He is like a fan.*

Unlike *external* and *access situations,* which can be directly observed, *motivational situations* are private. Whilst Yvonne acknowledges that other people might have different *'priorities'*, Roberta fails to appreciate why such '*people*' would behave in a particular manner.

Roberta	*I know people who would readily change their mobile but not a [a broken] washing machine. I know people like that. And he would complain not having [enough] clothes. Then you see him with an S3 and even an S4.*
Yvonne	*That's because he has different priorities. Probably the mobile comes top in his priority list.*

Status conveying behaviour was introduced in Section 5.1.3. It captures behaviour instances whereby actors communicated with other observers messages about their desired social identity and status. In contrast to other identified behaviour *consequences*, the experience of status related *consequences* emerged very different. Whilst consequences in terms of *utility, hedonism, effort, disruption, cost* and *safety* could be experienced and evaluated directly by the actor, status *consequences* were evaluated and communicated implicitly or explicitly by the observers. This resonates with a radical behaviourist's take on verbal behaviour.

The emitter of *status conveying* behaviour appeared only able to assess performance and perceive any consequences if and when those observing opted to give *feedback*. *Social feedback*, therefore, emerged to imply the legitimisation or rejection of attempts to gain status advancement. Actors and others observed by actors appeared in a constant effort to portray a better social status *(image)* particularly through those behaviours that where highly visible to others.

Both social network usage and smartphone ownership emerged as status sensitive although in a different manner. Social networking emerged as status sensitive at the *application* level of behviour, therefore, in the way actors used it to communicate with others. The number and type of friends and what was posted emerged as highly status sensitive. Smartphones, in contrast, emerged highly status sensitive at the *tool use* level of behaviour. The type and style of technology owned emerged as very important for status purposes. The possession of an iPhone was considered by many, where warranted, as a sign of identity and affluence. The possession of an old or basic model was considered by many as embarrassing.

Actors appeared very quick in reading and reacting to *conveying status* behaviours emitted by others. Very often such data were related to projecting one's *access*

situation, such as affluence and skills, or one's achievements such as career success, popularity amongst friends and family. Actors were also equally quick to consider and accept or reject status or identity aspirations emitted by others.

In the following account Valerie stated why she believed some fifteen year olds had expensive iPhone devices. She argued that this was effectively the behaviour of parents wanting to show off their economic disposition to other parents.

Valerie	*But for a fifteen year old, it's the parents who are causing this. "I gave my son an iPhone 5. What does your son have?"*
Interviewer	*And why do they do that?*
Valerie	*To show off to other parents. Maybe.*
Maryrose	*Because in life there is competition; academic competition, competition… I think everything!*

Ownership of an iPhone was linked to reputation. Actors appeared to agree that many people owned an iPhone because of its brand, and the '*cool*' image owners want to convey.

Julienne	*I think that some people do it to protect their reputation. It is like I am a cool person and I will post how cool I am and people will continue to like me and the more I have likes, the more I look cool.*

Interviewer	*Why do you think there are people ready to spend 800 Euro on a mobile phone?*
Andrea	*For their image, I think.*
Astrid	*Just to say 'I have an iPhone 5'.*

Mario	*… generally they take the iPhone for the brand name rather than for being an iPhone. It has the features you would find on other mobiles, at a cheaper price… I mean…*

Facebook emerged as a very common tool used for conveying status and identity. Actors were very critical of people who used Facebook to convey a social image that, according to them, was not legitimate. This was a common occurrence observed across

the interviews. Actors consistently reported seeing people attempting to use Facebook to inflate their status by reporting a lifestyle that was untrue.

Matilda	*Then there are some people that write a status and then they like it themselves.*
Astrid	*Exactly.*
Matilda	*How stupid.*
	…
Matilda	*If you wrote it, it is obvious that you like it.*
Matilda	*Otherwise why would you write it? For others to see it?*
Interviewer	*Why would someone do this?*
Matilda	*Don't know.*
Eleanor	*To be popular.*
Aldo	*To increase the likes. There is a pattern… If someone makes a like, others follow…*
Eleanor	*I would not follow…*
Interviewer	*What does it mean to have more likes?*
Many at once	*Being popular*
Andrea	*Many people…*

Actors were strong in passing judgement on persons that attempted to use technology to convey qualities about themselves which in the actors' views were untrue. Actors were critical of such users often concluding the opposite of what was claimed. Actors from different interviews argued that being too active on Facebook might in fact be none other than a sign of '*loneliness*'.

Maryrose	*The busier you are – the more life you have – the less you are posting about it on Facebook. Like 'Wow, what an exciting life I have! This morning went there and then there….' Why are you pointing it out? Maybe your life is not that good after all.*

Julienne	*I think it's not just loneliness…. I think its people who are lonely too but I think it's to uphold that status… in society.*

Valerie	It's true. I mean, I think a lot of people are unfortunately becoming more and more anti social because they stay at home. If they post a lot of statuses and personal details about their lives I think that they do not have anyone with whom to talk about everyday things. I think some people have nothing better to do.

Eleanor	*There are many stay-at-home mums, example they have the first baby, a one year old. So they start to post what the baby is doing and without knowing you like … so [they] stay in the trend… stay at the top. I start saying to myself are these feeling lonely at home… I don't know… or they want to share…*
	…
Loraine	*Or they do a Facebook profile for the baby*
Annabelle	*With timeline…*
Astrid	*Or last time with the soft toy*
	…
Matilda	*Once you had someone, a friend…*
Astrid	*Yes, I had one that made a profile for his son that was one year old. And he would post as if he was the child. Example 'Today I ate chicken for the first time'. Is this man serious?*
	(Laughter)

Actors have criticised people who according to them post too much about themselves on Facebook calling them *attention 'seekers'* and '*show-offs*'.

Maryrose	*I think to show off. I cannot understand why one should post on everyone's newsfeed kisses for her boyfriend… [in relation] for six years. We know.*

Matilda	*I know about people, males and females, that share every photo they have, or photo of her hair, or his body, or … with bikini… I hate it.*

Actors viewed other people that use technology to convey status messages as '*immature*', '*incompetent*', puerile and over competitive.

Annabelle	*When they are still young, they write; 'Like my photo' and 'Like here'. And I really hate it. It is more likely that I do not like it.*
Andrea	*Like mine and I will like yours back.*

Martha	*If they are able to use it…*
Maryrose	*They behave like a child… that's how I see them.*
Interviewer	*Why?*
Maryrose	*They regress…. for me personally I do not care about who has a mobile that is better than n me. It's like they went back to childhood after some time and they start this type of nonsense competition. That is how I see it.*
Julienne	*We see it a lot. They have an iPhone or an iPad… Then they take it out (she holds it prominently in her hand) like this…*
Josephine	*You see them doing like this…*
Alessia	*You hear them say 'Why is it not working?' you ask yourself if he is being serious? For me this is keeping up with your so called peers, and you bought something expensive, which you've had for a couple of months and you still haven't figured out how to switch it on. That's a jealousy issue. They are like children.*

Actors emerged as continuously judging other people's emission of status cues distinguishing between the legitimate and the cheaters. In the example below Matilda and Annabel discuss a hypothetical situation where someone has 700 friends. Alessia recalls the behaviour of an acquaintance that created stories about his lifestyle. In both cases the status attempts of the observed were rejected and the observed considered as cheaters.

Interviewer	*How would you judge someone who has 700 friends?*
Matilda	*Wow. He knows quite a lot of people.*
Annabelle	*He is showing off. Sorry.*
Matilda	*He does not know half of them.*
Loraine	*Exactly.*
Andrea	*It depends.*
Peter	*He doesn't know half if he has more than a thousand. If I do not know them, I remove them, and I have removed many.*

Andrea *I hate it when they add you just to have a large number of friends. I rarely add someone... I only add when I really want to add someone. Otherwise friend requests... If I know you I add you... don't know you - I'm sorry.*

Alessia *I know about a case, I am sure it happens more often than I know, however, people to look good [they post on Facebook] 'Wow yesterday, I got really drunk... [I have a] terrible hangover'. And I know for a fact that this person did not get drunk yesterday. He just stayed at home probably watching a film or studying or reading a book... whatever. But to look good in front of some people... apparently... that is cool. So on Facebook he posts things like this. And I am sure it's not just this particular person. You know? So yes, I see this a bit stupid. Very stupid.*

However, not every person was negatively judged for conveying status through the use of technology. Actors viewed some behaviour as legitimate such as in the examples below where those emitting the behaviours were shown respected.

Andrea *I remember the doctor. He used to turn up with the Telecell (telco operator in the late 90s).*

Astrid *Yes, true.*

Astrid *Yes but few (remember). Exactly. You didn't' see many people.*

...

Sandra *For those times.... he used to look like... not everyone had it at home. So he was like.... not luxury... but as if he had something more than others.*

Marthese *Foreigners are fonder of these than Maltese. I mean in design and so...*

Dylan *You mean?*

Marthese *From what I've seen, foreigners... as a matter of fact... many foreigners... almost all... have an iPhone.*

Roberta *Sometimes they are designers, or so, that use it more for its capability.*

Dylan *For its power. And furthermore they use it because designers use Adobe Photoshop and things of the like.*

Roberta *Exactly.*

Others who in the eyes of actors legitimately diverted from norms, such as those not possessing or using the latest technologies where still not judged negatively.

Keith *He knows that at the end, he does not need to waste money on smartphones and so. He just bought one to suite his needs. For his own needs like messaging and just calling.*

Actors also appeared sensitive to how people of higher status use technology. They seemed to acknowledge that people of higher status are expected to behave in a different manner. For example, on viewing exhibit 1.2 (Appendix 5), an iPhone covered in diamonds, actors still appeared to appreciate an element of showing-off and competition. However they did not appear to pass any negative judgement about the behaviour of others who are more affluent.

Interviewer	*Who do you think would have a mobile like this one?*
Matilda	*Some Paris Hilton.*
Eleanor	*Kim Kardashian.*
Aldo	*Someone from Dubai.*
Andrea	*Exactly, or someone from Saudi Arabia.*
Matilda	*Someone from Hollywood. Not myself!*
Andrea	*Someone that in the morning with the Mercedes, the next day with the Bugatti - those.*
Interviewer	*Why?*
Annabelle	*Because they can afford it.*
Loraine	*To show off.*
Astrid	*Those from Gossip Girl for example.*
Aldo	*Because, for example, you do not need it.*
Peter	*Exactly it is a status symbol.*

Likewise Matilda highlights how the then US President Obama used technology in his electoral campaign to appeal to the younger generations. Again, despite the observation she does not judge his behaviour as negative.

Matilda *And even when… The first time Obama went out [for President], he always appeared…. Himself with a BlackBerry…. to convey the image that he uses social media. The BlackBerry has a certain status.*

In the below account Maryrose talks about a colleague, a young doctor, who was also a popular singer. Maryrose considers that his aggressive use of Facebook is legitimate in view of his singing career. Similarly Maryrose and Annalisa see Joseph Calleja, a local tenor who has become successful at an international level, as a busy person who does not need to use Facebook to legitimise his status. Rather he uses it to please his followers.

Maryrose *[Gianluca] has become like a celebrity and therefore everyone - 'Facebook, Facebook - let's add him'… and they feel honoured because he added them. But not because these are friends. More as followers rather than friends.*

Annmarie *A very busy person indeed Joseph Calleja (Famous Maltese Tenor). However many times he posts from the place he is [visiting]. The scope is to keep his followers updated… and his sponsors. In that case [Facebook] is useful.*

Interviewer *As a tool in this case.*

Annmarie *Exactly. Obviously… You will not feel sorry for someone like that. (Laughter)*

…

Annmarie *Always going everywhere…*

Maryrose *He has a life. He has a life and he does well!*

Actors were also very sensitive to being observed and judged by those around. Actors appeared very selective in what to post on Facebook out of fear of how others might judge them. This was acknowledged by Mauro as shown below.

Mauro *You think before posting something. I am not going to post a photo of myself fighting with my wife. I will post a photo of me in the garden with my wife.*

Similarly, disclosing smartphone ownership also emerged as being sensitive. Actors with the latest technology were more eager at showing, and describing the technology

they owned. Others with older or less trendy smartphones resorted to providing justifications aimed at mitigating any negative judgements by those observing.

Interviewer	*What mobile do you have?*
Reuben	*HTC*
Interviewer	*Is it a new model?*
Reuben	*Unfortunately I lost an iPhone and had to buy a new one?*
Interviewer	*Why did you choose this mobile?*
Reuben	*Because it has the same features as the iPhone and it was much cheaper*

Data further expose a distinction between how actors viewed their own *status conveying* behaviour and that emitted by others. Whilst actors appeared to be very observant and critical of *status conveying* behaviours emitted by others, they often appeared unaware of their own status emissions. Actors persistently showed an inability to acknowledge such behaviour even when directly questioned by the interviewer or other actors. Whilst actors did acknowledge the influence of *appeal and style* attributes to their behaviour, they emerged unable to link these elements to status consequences.

In the example below Annmarie admits that she chose her smartphone because of the style. Whilst she could explain what she liked about the '*nice design*', she had difficulty describing any benefits resulting from owning a stylish design.

Annmarie	*I have LG GW300. I chose it because it has a nice design - I have to admit, you'll ask me what is the difference? I don't know. Even the colours they choose. Now maybe my mobile does not appeal to everyone, but the fact that it is coloured pink and the design is so [cute], buttons as well. The colours as well as if these are for texting, etcetera…*

The following discussion ensued when the interviewer prompted actors to explain why they wanted to own an iPhone with an appealing design. The discussion dealt with *style attributes* (*facts*) and *appeal qualities (attitudes)* but failed to produce any projection of *consequences*. Whilst actors did link *style* attributes with prestige, the interaction indicates that actors had no clear answer why an appealing design might be important.

Stephanie	*Today, when [a smartphone] is very rounded, you are like portraying an image.*
Yvonne	*Like casual.*
Stephanie	*Exactly. The fact that it is round but not too roundish. Just the edges are just a bit roundish.*
Roberta	*It is more serious, not more professional. More serious.*
Stephanie	*Yes, more serious. More serious. Exactly.*
Marthese	*Even the fact that the combination of colour has chrome in between and white on the top. I mean, if you look closely at it… It is not just a flash surface; it goes a bit further down to complement it.*

The data below provide another example of actors trying to explain what makes the iPhone design attractive. Only *facts attributes* that contribute to *appeal* were identified and no consequence emerged.

Peter	*The first impression I got when I saw the iPhone for the first time was that for me it was too boxy - its design.*
Matilda	*And it does not have Samsung written on it…*
Peter	*Today, I do not know why, but it looks appealing. When I saw it the first time, this…*
Astrid	*Yes.*
Matilda	*Alcatel looks very ugly [written] on it.*
Astrid	*True.*
Matilda	*Than anything.*
Astrid	*True – it's how it looks. The applications look nice. I see these very attractive. Very colourful.*
Matilda	*Yes*
Annabelle	*Very colourful. Exactly.*
Eleanor	*You get attracted.*
Astrid	*Yes.*
Astrid	*It's designed in a way… to attract people.*

Sometimes actors resolved such inability by linking style attributes to *usefulness* and *utility consequence*. For example in the example below actors associated 'nice design' with *ease of use*.

Loraine	*That it is more comfortable in your hands.*
Matilda	*It is good on your nails.*
Astrid	*Good on your nails. Yes! That is very important.*

Table 6.15 below lists further data instances of actors associating style attitudes to utility consequences.

Table 5.15 - Examples of style attributes linked to utility consequences

Actor	*Data*
Alessia	*More than sleek it has to be slim. For example, for me, personally, I like when these are slim because you can… … It's more likely to fit in a handbag or in a pocket, you know? So that's important.*
Martha	*That's it, because I like the products. I know that the products are over priced… But I like the… they go with my style. Just that. Minimalist and sleek. You pay a lot but I believe that you get a service. And it matches my iPad.*
Martha	*No, because I like the style. They are beautiful products. And up to now my experience with Apple products has always been, you pay a lot, but it won't let you down.*
Mario	*The thing I dislike most is that it has plastic at the back. I feel the difference. If it is a bit with metal or so, you do feel the difference. You feel it more - in your hand.*
Peter	I liked its design. In the sense that other models, if you do like this, you break off a piece of it. This…. nothing, I mean. And I gave it a hard time and still works. That means, that it's design, at the time was something… 'wow!'. At the time one would boast having it. 'Look, I have an iPod'.
Valerie	*It's very slim, very light… and in my view they're very good, they're always very good.*

Some actors did however attribute design to status consequences. Some actors agreed that there was no utilitarian *consequence* to be derived from owning an attractive and expensive smartphone. However they argued that an appealing design offered *hedonic* consequences through owning something luxurious. Stephanie goes a step further and

implies that one can only gain positive *hedonic* consequences if the technology is visible to others.

Mauro	*You are like saying a girl buying shoes costing 170 Euro instead of buying a pair costing 60. I mean - it's the same function... Maybe it makes them look more...*
Interviewer	*Are you telling her that she is making a mistake?*
Mauro	*No. She is just spoiling herself.*
Interviewer	*Why would she want to spoil herself? What is the benefit?*
Mauro	*But you are...*
Dylan	*That is one's satisfaction. No?*
Mauro	*The meaning of life is all about it...*
Roberta	*She feels better... in them (the shoes)*
Interviewer	*You look better, you feel better? What does it mean?*
Yvonne	*The thing is that you do not feel it as a necessity... It's more of a luxury.*
Stephanie	*You are not going to buy it (iPhone) to leave it in the handbag.*
Yvonne	*Exactly.*

The distinction between how actors perceived their behaviours and that of others is also evidenced in the way actors distanced themselves from the way others behaved. As shown in the examples below, actors claimed that unlike others, they did not use technology to make status claims.

Interviewer	*You think some people would be ready to pay even if they do not have the money?*
Dorianne	*I guess there would... they struggle to... There are people who... It's a status symbol having such a specific type of phone...* *I am not that type of person. I don't know what that phone has which other phones don't. Could be attractive to individuals who are very technology savvy – that would make sense for people with these phones. But for me...*

Annmarie	*For example, if Vicky has a really nice phone, and I admire it - I say 'wow!'. But not because she has it,*

then I will have to buy an even better one to be better than her. I adore phones. I like to look at specs. And I admire the phone as a gadget but not… I'm not jealous of Vicky for having it.

Interviewer *Are you one of those portraying a false image on the internet than in reality?*

Eleanor *No. In fact I look very dull on Facebook. Very dull. I hope I am not so dull in reality.*

Rachel *There are people who tell you to like their [Facebook] posts… I cannot understand… What is important is whether you like it. That's it!*

Interviewer *People that ask you to…*

Rachel *Yes… "Like my post please."*

Interviewer *Why would they do that?*

Rachel *To have many likes?… I cannot understand. (laughter)*

Some actors however seemed aware of their status seeking behaviours. The first example below deals with Facebook and what actors covertly considered before posting. The second deals with the choice of smartphone and whilst the colour appears to be important for the actor, the actor openly admits that colour did not enhance the device's performance.

Interviewer *What do you consider when uploading something on Facebook?*

Eleanor *What people will think?*

Andrea *Exactly.*

Astrid *What image will I convey of myself?*

Annabelle *The one in the photo.*

Eleanor *Might as well not post it then. Otherwise [they will say] 'she is boasting of what she might be doing next in life?' Example… even if you like, I don't know… a wedding site. They might say 'are they planning [their wedding]?'*

Roberta *For example… Then you come to choose the colour. You say… 'Am I going to buy it white, black?' But*

first you have to think… What do I need it for?

Similar observations were noted for social networks. Actors seemed very careful about how social networks are used, ensuring that they get across the right image of themselves.

Mauro	*But I do not want to show myself as a sad person… I only put nice things on Facebook.*
Roberta	*Doesn't everyone do that?*
Mauro	*[It is like] when you go for an interview, you go with a smart suit, shaved… not everyday life.*
	…
Mauro	*That's it. You think before posting something. I am not going to upload a photo of me fighting with my wife. I am going to upload a photo in the garden with my wife.*

5.1.6 Feedback

Beyond observations, actors emerged as consistently evaluating the behaviours of other users perceiving consequences in the same way as evaluating own past behaviours. Through interaction, actors were observed giving feedback to each other about the outcome of behaviours. Two types of *Feedback* emerge from data namely *performance feedback* and *status feedback*.

Performance feedback reflects instances where the observer passed judgement on the utilitarian effectiveness of behaviour emitted by the observed. Feedback appeared to offer those observed an opportunity to gain third party evaluation on one's behaviour effectiveness, confirming or conflicting with the emitter's own evaluation.

Status feedback emerged to represent responses to *status conveying behaviour* or to other behaviour that can indirectly impact one's social status. S*tatus feedback* was observed being communicated implicitly and explicitly. In the example below Dylan was asked by the Interviewer how he feels about being one of the first to own the Galaxy S4. Yvonne and Roberta butted in the discussion and conferred prestige to Dylan.

Interviewer	*How do you feel?*
Dylan	*No, you feel more….*
Yvonne	*You feel a sleeker!*
Dylan	*That's it.*
Roberta	*Exactly*

Marthese was made to feel '*embarrassed*' by comments made by *'non-Maltese*' about her tablet. Whilst it does not appear that Marthese wanted to emit any *status conveying behaviour*, the feedback given to her about what would otherwise be mundane behaviour was interpreted as an attempt to demean her. This appears to have impacted her *situation*, thereafter triggering remedial behaviour by opting to refrain from using the technology in public.

Marthese	*I was somewhere, and since the tablet I was using was not Apple, the first thing they asked me was - 'What tablet is that? What tablet is that?' They were not Maltese… they were foreigners. I felt very embarrassed. I put it back in my handbag and did not take it out again.*

Martha, on the other hand, learnt that as an owner of a very old mobile phone, she consistently attracted negative *status feedback* from observers. She therefore avoided taking the device out of her handbag.

Martha	*As the owner of an old, very old phone, whenever I take it out… I have to justify. Every single time… I find it boring that I have to explain to everyone, I mean, as if I am expected to own a smartphone. I have to tell them that I had one and this was only temporary but I ended liking it and kept it. It is as if the choice is deliberate, which it is now… you get this look on their face. It doesn't bother me… If they start to look at me with an angry face, and to shun me because I do not have a mobile that is cool… I do not care about them anymore.*

The below interaction provides various examples of *status feedback*.

Peter	*Once I had one like that. The only thing that I hated, although it was very reliable, [was] the appearance.*

If I am going to use a mobile, I want one that works.

Astrid	*Actually we also used to pick on you.*
Matilda	*But mine had an advantage… It was pink.*
Astrid	*But we would still pick on you, for having that mobile.*
Annabelle	*I would not take it out in front of people.*
Andrea	*If I see someone with a Nokia 3310 I would say that he is back in time.*
Matilda	*I wouldn't say that he is back in time… I would say 'Look at that? how come? Does it still exist?*
Astrid	*Or when it rings I start looking around and I would say 'Who is still using that mobile?'*

When actors discussed hypothetical future behaviour with other actors, they appeared to be indirectly inviting feedback on projected *consequences*. Actors responded by passing p*erformance* and *status feedback*. The opportunity to sound out behaviour strategies before actual emission seems to have offered actors an opportunity to receive feedback even before the behaviour takes place and actual consequences materialise.

The below example includes a discussion through which Peter shared his planned behaviour whilst Astrid gave *feedback* on projected *consequences* resulting from the size of the smartphone.

Peter	*If I had to buy a new smartphone, I would go for a one like Astrid's*
Astrid	*Go for the S4. Not the S3!*
Peter	*The only reason is that a mobile phone must fit in the pocket. That is too large for me.*
Astrid	*Listen to me. (…) I also used to panic about handbags. But it still fits even in such a [small] handbag.*
Andrea	*But your handbag is quite… [large]*

Astrid	*Yes. Ok. But my handbags are getting smaller all the time.*
Peter	*I do not have a handbag, but I do have… [pocket]*
Astrid	*It is the same.*
Andrea	*Don't get me wrong… it fits in my pocket.*
Astrid	*Yes, it fits.*
Peter	*But knowing me, therefore, at the first bump [it will break].*

5.1.7 Summing findings

Data captured in this study have been treated and analysed as verbal behaviour. User accounts about past behaviour, beliefs and plans were treated as instances of verbal interaction and not as mental processes. Any *information* shared between users is relevant as it benefits the group. Through verbal interaction, groups of actors were able to share lessons learnt from individual experiences and observations. They gave feedback to each other on performance of manifested or hypothetic behaviour, and sought and conferred social status.

Awareness emerged as facts, attitudes and consequences actors shared via verbal behaviour. A*wareness* was shaped (learning) through different *information* sources namely WoM, media, observation of third party behaviour, and outcomes of past experiences and conditioned by external states (*environment*) and internal states (emotions). *Private internal events (thinking) change awareness*.

As represented in Figure 5.2, *awareness* emerged in three categories namely: facts, being objective factual descriptions assigned to ICTs or their use; attitudes, which are subjective attributes assigned to ICT or their use; and consequences, expected or experienced, from use. *Awareness* also emerged in seven dimensions with hedonism and status being dominant non-utilitarian influencers. All descriptive accounts in data fall under one or more of these awareness classifications and dimensions.

		***Awareness* classification**		
		facts	***attitudes***	***consequences***
		objective attributes describing the technology such as shape, specification, and the method to apply	subjective positive or negative attributes about the technology such as appeal and hedonic associations	perceived or expected consequences resulting from usage within a specific situation
Dimension	***Utility***	elements that contribute to the technology's capacity to bring about a utilitarian *relative advantage*		
	Hedonic	elements that contribute to subjective experience of private enjoyment		
	Status	elements that contribute to social advancement or otherwise		
	Cost	elements that contribute to the financial cost incurred or averted		
	Effort	elements related to the actor's readiness to adopt and use technology		
	Disruption	elements related to other indirect but necessary behaviours		
	Safety	risks elements related to potential failure in loss or harm		

Figure 5.2 - Awareness as categorised in study

Findings also expose how the actor's *internal* and *external situation* impacts *awareness* and the potential likelihood of behaviour emission. The actor's *internal situation* constituted of subjective elements experienced privately by the actor such as motivations and emotions. Examples include loneliness, boredom and happiness. The *external situation* emerged to represent those changes in the environment that appeared to instigate a reaction by the actor such as the advent of new technology, receipt of technology as a gift, or the breakage of a smartphone. Behaviour was also conditioned by the actor's *access situation,* limitations that inhibit the actor from embarking on a specific behaviour. Such limitations included external elements like financial restrictions and product unavailability, and internal restrictions like lack of skills.

Findings have indirectly exposed that adoption and use behaviours comprise of complex combinations of mutually dependent behaviours each with distinct situations and *consequences*. Five behaviour categories emerged namely *tool use behaviour*, a*pplication behaviour*, *status conveying behaviour*, *purchase behaviour* and adaptation behaviour.

Findings further show that beyond-utility, therefore ICTs as tools for interaction, behaviour was also persistently influenced by the social context in which it was used. ICTs were used to affirm or confer status. Users used Facebook to make statements about their personal status aspirations. Facebook was used to observe status emissions by others and to give feedback. Moreover, data shows that the emission of behaviour itself, for example the acquisition of an iPhone, often served as a social status message that attracts status feedback.

In addition to utilitarian and social benefit or consequence, users expressed that they had positive or negative emotions following or towards certain behaviours. Such private feelings may be considered as internal forms of reinforcement as proposed by Foxall(Foxall, 2013, 2007b) in *intentional behaviourism* and Rolls(2013; 2015) at the sub-personal level.

The next section explores the inferences derived from data with a focus on non-utility, therefore the data that concerns status and internal states. Formal theory emerges in the next section as a product of combining findings and relevant insight encountered in literature.

5.2 Theoretic implications - A conceptual framework

Building on the insight emergent from data, Skinnerian operant theory and the tenets of *intentional behaviourism* (Foxall, 2013, 2007b), a theoretic conceptual framework for consumer ICT adoption and use is proposed. The framework, presented in Figure 5.3, retains an operant structure of stimulus (S^D), behaviour(R) and reinforcement (S^R) and accounts for the situation elements proposed in the BPM and the BPM-I. This is achieved by factoring within an internal and external explanation whilst also accounting for a consumer *situation,* a *learning history* and *internal states*. The framework builds on the five core elements described below:

i. When users behave (overtly), they operate on the *environment* and cause it to change. The *environment* serves as a source of *information* resulting from events, behaviours by others, media and WoM.

ii. Three levels of behaviours are identified in the framework namely, *internal events* (within the skin), *verbal behaviour* (interaction) and *overt behaviour (operant on the environment)*.

iii. *Consequence* refers to changes in the environment that result from behaviour emission. This can take the form of utility advantage or disadvantage, but also include of social (status) repercussion through observer *feedback*.

iv. *Reinforcement,* for the purposes of the framework, equates to symbolic reinforcement as proposed by Foxall(2011, 2013) in *intentional behaviourism*. Emission of *overt*, *internal* and *verbal behaviour* is contingent on *reinforcement* that occurs at the sub-personal level and which is experienced privately at a personal level.

v. The *internal situation* entails a *learning history* and an *internal state* that interact to induce behaviour emission. The *learning history* constitutes of rules formed following past experiences, observed behaviours of others, observed events taking place in the environment, exposure to *verbal behaviour* emitted by other members of the social system and *internal events*. The *internal state,* privately experienced as emotional states, primes the consumer to emit behaviour.

Findings show that adoption is marked by a complex combination of smaller emissions. Findings suggest that complex behaviours should not be understood exclusively as sequential chains of operant emissions. Some emissions might indeed fit the concept of operant chains as proposed in literature (Fagerstrøm and Arntzen, 2013; Fantino, 1977) where the reinforcement of one behaviour is viewed as stimulus to the latter. However, data shows (see Section 5.1.3) adoption or use as the sum of distinct but synchronous and mutual behaviours shaped by diverse *stimuli* and contingent on unrelated reinforcements.

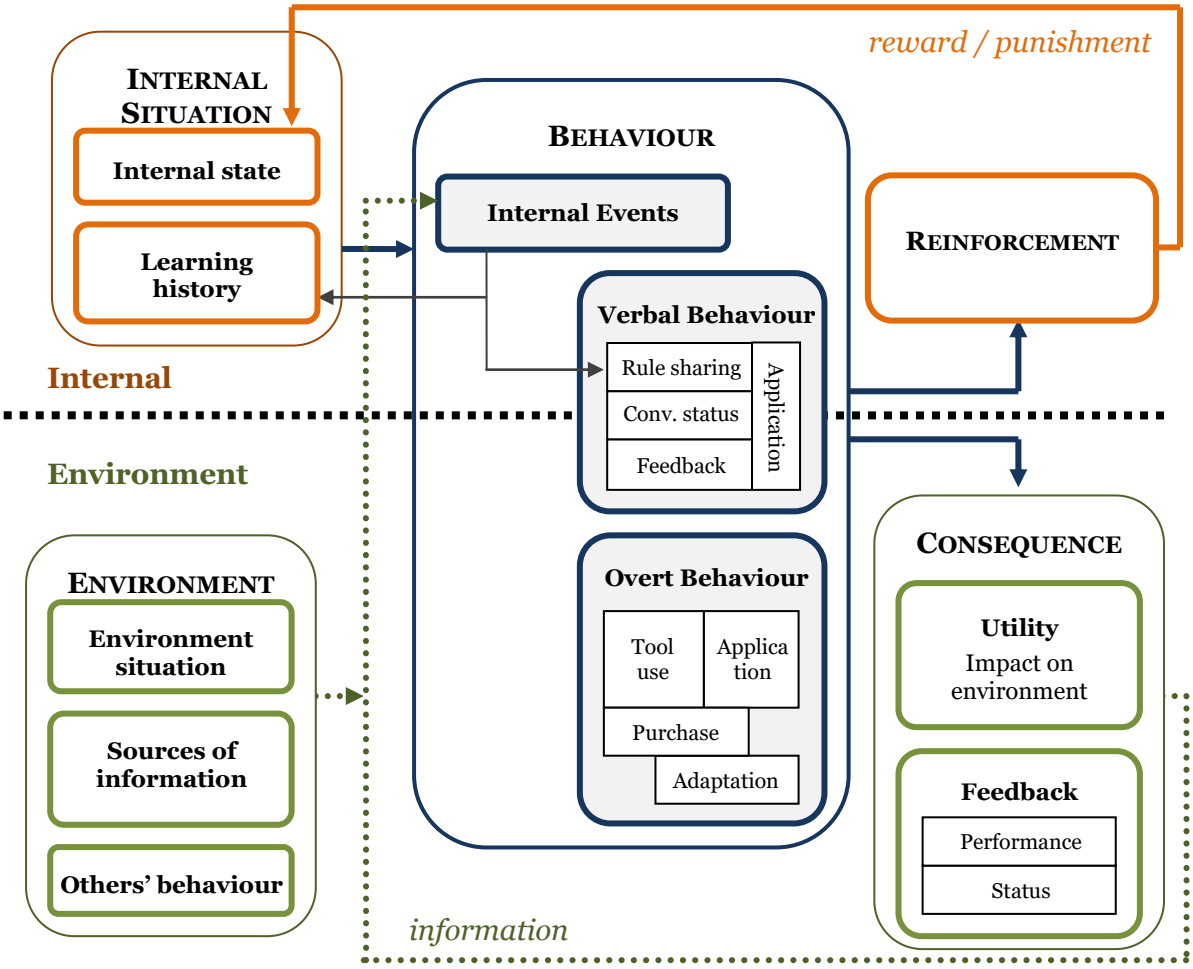


Figure 5.3 - Framework for Consumer ICT Adoption and Use

Results show actors balancing between utilitarian, informational and hedonic goals even when these entailed consequences derived through different separate emissions. For example, contacting a friend using a smartphone will yield utilitarian benefits – a faster effective way of passing on information. The consequences of choosing a pink coloured smartphone, an *appeal attribute*, will attract attention and feedback from observers. The user can feel entertained when using a smartphone to chat and kill time. All three examples can be part of one situation where a user uses a pink smartphone to call and chat with a friend. Hence, whilst the technology's usefulness is determined by its functional attributes, these and other attributes will also determine the opportunity to derive social and hedonic benefits.

Furthermore, the framework also accounts for simultaneous internal and external reinforcement. In agreement with theory and as shown in the above example, users

experience *internal reinforcement (symbolic reinforcement in intentional behaviourism)* in the form of feelings and longer term emotional states. The need to account for internal influencers on behaviour is important. Data provides evidence of behaviour that is solely contingent on exclusively private experiences. For example, an actor claimed that he browsed the internet on his smartphone whilst on the bus whenever he felt bored. For such cases, behaviour cannot be explained without accounting for internal states and the consequences. Chatting, playing games, exploring new technologies are all examples of actor behaviours in data that cannot be explained unless the internal dimension is taken into account.

Results also show actors experiencing positive emotions in situations where the utilitarian and informational consequences could be beneficial to them. Negative emotions were reported when behaviour was not perceived as advantageous. For example, most actors expressed enjoyment in owning the latest technology as this would provide them with new utilitarian opportunities. Other actors expressed enjoyment in being seen using the latest technology. The possession of a '*sleek*' smartphone was for example considered as enjoyable. Yet, whilst the framework bridges both internal and external operant representation of behaviour, it respects the incommensurability of extensional and intentional dimensions as defined in literature (Foxall, 2013, 2007b) through provisions as outlined below.

5.2.1.1 Revisiting behaviour

The proposed framework, supported by evidence located in data, proposes three distinct types of behaviour namely *internal events*, *verbal behaviour* and *overt behaviour*. This subsection revisits the behaviour classification as emergent from data by linking it to literature and inferring new theoretic insight.

Internal events are described as all private cognitive processes such as the acquisition of *information*, the formation of beliefs and the evaluation of behaviour performance. Skinner (1976) argued that whilst what happens within the skin cannot be directly observed and less so measured, if evidence of its existence is encountered, than it has to be accepted and accounted for in theory. The study provides no direct observation of internal events but provides robust evidence of internal events. Data features many instances where, following interaction, sometimes accompanied by pauses of apparent reflection, actors mastered new facts, developed beliefs (attitudes) and projected

consequences on past or hypothetic behaviours. The conceptual framework, in line with Skinner, views internal events as covert forms of behaviour. This discussion continues in Section 5.2.1.2.

Internal events leave no direct changes in the environment but are proposed to induce changes in the *learning history* and *internal states* (emotions). This understanding resonates with Foxall's BPM (Foxall, 2013, 1992). *Overt behaviour, at contrast,* refers to those instances where the user operates and changes the environment through the use of technology. Based on data findings, ICT adoption and use is further broken down into four distinct potentially simultaneous mutually dependent *overt behaviours* namely (i) *tool use* - referring to the manipulation of the technology as a tool, (ii) *utility application* – referring to the activity to which the technology has been applied as a tool, (iii) *purchase* – referring to the financial transaction if and where relevant, and (iv) *adaptation* behaviour – referring to other unrelated but required behaviours for *tool use* and *application* behaviours to take place which may entail discontinuation and skill acquisition. Aligned to the BPM (extensional), overt behaviour can induce two forms of changes in the environment namely utilitarian and informational (status) advantages or disadvantages.

For the purposes of this study, and as discussed and detailed above, *verbal behaviour has* been restricted to actor emission of *rule sharing*, *status conveying* and *verbal application* behaviours. It is important to highlight that other *verbal behaviour,* such as instruction, have been omitted as these were not considered directly relevant to adoption and use. The proposed representation of *verbal behaviour* is therefore not intended to be exhaustive but exclusively aimed to provide enough understanding for a comprehensive yet parsimonious framework to emerge. It is also important to highlight that as qualified by Skinner (1957a), the reinforcing effect of *verbal behaviour* is exerted on others rather than on the emitter. Therefore, v*erbal behaviour* is not limited to the capacity of language, but can entail all forms of communication. Being conspicuously visible in possession of a pink smartphone is an example of *verbal behaviour*.

Basing on classification emergent in data, *Verbal behaviour is further* represented under three distinct types namely *rule sharing behaviour*, *status conveying behaviour,* and *feedback*. *Rule sharing behaviour* refers to instances where associations learnt (rules) are shared with other members of the social system. On the

other hand, *WoM,* previously introduced as a source of *information* for the listener, is equivalent to *rule sharing behaviour* for the speaker. *Rule sharing behaviour* does not appear to just benefit the listener. When actors share rules, besides benefiting the listeners by offering them new *information*, the speaker also appeared to benefit by attracting *feedback*. Data show actors engaging in iterative *rule sharing* and *feedback* cycles. On various occasions actors were observed changing their views to reflect *feedback* after acquiring new *information* or after rejecting previously held rules.

Status conveying behaviour emerged as verbal attempts to ascertain or confer one's status (including identity) within a social system. Such behaviour was conveyed through language but also through other overt behaviours. For example, by being seen using the latest iPhone model, an actor was sending a social message about the respective financial disposition or identity. *Finally, feedback* emerged as *verbal behaviour* instances where third person evaluation was given or gained. *Feedback behaviour* was observed being instigated by *rule sharing, status conveying behaviour* and any observed overt behaviour. Two types of *feedback are* inferred from results namely *performance feedback* and *status feedback*. *Internal events* cannot trigger *feedback* as these occur privately and cannot be observed by other members of the social system.

A further important distinction that is viewed as highly relevant for the purposes of this study entails the demarcation between the process of communicating ICT within a social system – as a process of diffusing information about the specific technology; and the application of ICTs as a tool for communications. This distinction is important as it presents a more complete understanding of the role *verbal behaviour* plays in adoption and use. Data indicate that actors became aware of technologies and their advantages mostly through word of mouth and media as details, views, and experiences were shared (see Section 5.1.1.2). On the other hand, data also show actors applying ICT as a tool to interact. Calling, emailing and posting a photo are all examples of ICTs being applied as a tool to communicate. Figure 7.2 below lists examples extracted from data that map both dimensions against the three types of *verbal behaviour* categories. Such complexities highlight the importance *verbal behaviour* plays in adoption and use emissions and the importance of its inclusion in any robust explanatory theory.

	verbal behaviour	***verbal application behaviour***
rule sharing behaviour	Talking about the specifications of a smartphone Talking about the risks of social networks	Texting information about an event Posting information on Facebook about a new car
status conveying behaviour	Owning a pink phone Having many friends on Facebook	Posting a picture with friends on Facebook and attracting many likes
feedback	Giving views about someone's choice of smartphone	Liking a comment posted on Facebook

Figure 5.4 - Dimensions and types of *verbal behaviours*

5.2.1.2 Revisiting reinforcement

Intentional behaviourism, as proposed by Foxall (Foxall, 2013, 2007b), suggests that behaviour is contingent on symbolic reinforcement. This is a major departure from the original BPM which, in line with conventional *radical behaviourism* posits, that behaviour is contingent on *utilitarian reinforcement* and *informational reinforcement*. In *intentional behaviourism, reinforcement* is experienced privately and subjectively at the personal level through symbolic reinforcement, experienced as feelings and emotion.

In the proposed framework, *reinforcement* is represented as an internal operant reward or punishment as suggested by Rolls (2013) and as contemplated in *intentional behaviourism*. Rolls qualifies reward structure as instrumental reinforcing stimuli which '*if their occurrence, termination, or omission is made contingent upon on the making of a response, alter the probability of the future emission of that response*' (2013, p. 241). Such description resonates with *symbolic reinforcement* as proposed in BPM-I (Foxall, 2007a). Rolls (ibid) further makes a distinction between primary and secondary reinforcers. He proposes that primary reinforcers constitute of stimuli that invoke unlearned reinforcements, such as taste and pain. Primary reinforcement can be explained as hard wired evolved structures resulting from natural selection for

fitness purposes. Secondary reinforcers constitute of those stimuli where reinforcement is learnt by associative learning with primary reinforcement, a view echoing Thorndike's(1911) *Law of Effect* theory. Rolls (ibid) adds that secondary reinforcers cumulate over other secondary reinforcers and can vary in intensity. He suggests that environmental stimulus can lead to various reinforcement associations that could potentially include a mix of both reward and punishment to arise. By pursuing such distinction one can expect users to behave in a similar and predictive manner in event situations that trigger primary reinforcements. However, secondary reinforcers are expected to be individual and group specific dependant on experience and group norms.

The *internal state,* as represented in the framework and in line with Rolls (2015), differs from reinforcement as it represents a lasting state that is privately and subjectively experienced by the user as an emotional state. It is shaped by subsequent occurrences of *reinforcements*. Boredom, happiness, and loneliness are examples of *internal states* encountered in data that seem to have primed actors to emit or withhold subsequent behaviour emissions.

In the realm of *radical behaviourism*, *internal states* have been mostly addressed through *Motivating Operation* (MO) literature (Michael, 1993, 1988, 1982). Laraway et al. argue that MOs '*change the current strength of behaviours related to the consequences'*, therefore an evocative or abative behaviour-altering effect(2014, p. 603). For the purposes of the proposed framework, that is aligned to an intentional understanding, *internal states* are understood to be elicited by rewards and punishments where their function is to condition the consumer to work to obtain or avoid the reward or punishment on subsequent occasions (Edmund T. Rolls, 2013).

In CBA literature *internal states* are encountered as the consumer's emotional experiences. However there appears lack of agreement on a definition for emotions between scholars. Two emotion classification theories have been briefly mentioned in Chapter 3 namely the Pleasure Arousal and Dominance (PAD) (J. A. Russell and Mehrabian, 1977), and the six basic emotions in Ekman (1993). PAD has been applied on BPM and used as a measurement of symbolic reinforcement in BPM-I (Foxall, 2013, 2007b). Whilst obtaining scientific evidence to back the validity of PAD within the BPM, PAD remains highly restrictive in its understanding of emotion with just three dimensions. Foxall further quotes Price (2005, p. 11), who addresses a broader

understanding of such *internal states*, namely (i) feelings such as pain and nausea (ii) reflex responses such as becoming startled, (iii) moods like anger, (iv) character traits such as cowardice, depression and anxiety, and (v) emotional attitudes such as love, pride or sadness in relation to an occasion or object. Such internal states are all subjectively experienced and are exclusively represented privately and communicated through *verbal behaviour* in intentional terms. Price's diverse categorisation emerges relevant to a consumer ICTs adoption and use.

5.2.1.3 User learning, revisiting user awareness

Information, or elements of *awareness,* may be summed as any intentional or extensional detail about an event or object in the environment. As outlined above in the categorisation of *awareness, and* as emergent from data, *information* may entail fragments of detail related to a specific technology, method of use, social appeal, novelty, risks, past experience, and perceived risks as examples. In complex situations such as consumer ICT adoption and use, actors appeared to make subjective choices on what *information* is relevant and important, and therefore which information deserved to be assigned attention, cognitive resources and eventual memorisation.

It is argued that consumers cannot assimilate all the *information* available in the environment. Most of the *information* available in the environment might never make it to the consumer's attention or comprehension whilst other *information* might be ignored as perceived as not important. The process of filtering and processing *information* is represented in the framework as an *internal event*. This means that the acquisition of *information* must be understood as being shaped by an *internal situation*, consisting of the consumer's prior experiences (*learning history*) and emotions (the *internal state).* Every consumer has a unique *internal situation* and is therefore expected to engage with *information* in a different way. This was evident in the way members of focus group two, young students following an ICT diploma course, differed from members of focus group four, new doctor graduates. The groups differed substantially in the way they perceive iPhone as evidenced by the way they treated *awareness* elements. The diploma students viewed the iPhone as mostly an expensive closed technology that is not suitable to their programming and entertainment needs. The other group, coming from a more affluent background, consistently implicitly and explicitly, emerged as highly status sensitive as to being seen owning or using an iPhone.

As discussed through the literature review and as emergent from findings, learning is presented as a process whereby associations between various fragments of *awareness* are formed. Data have exposed actors forming associations between facts and feelings forming new attitudes. Learning was induced by experiences (overt and covert), observations, exposure to media and WoM. Such associations, referred to as rules, appear to guide actors in predicting or evaluating consequences of future or past behaviour emitted by self or others. *Internal events* therefore may be described as a process through which consumers learn by forming new or maintaining held rules, within a *learning history*. *Learning history,* a term located in CBA (Foxall, 2007a, 1999, 1992), represents the consumer's unique learning over time up to adoption and use.

The distinction between intentional and extensional dimensions of a *learning history* can further serve to shed new light on understanding user *awareness*. In Section 5.1.1, *user awareness* has been presented in three categories namely *facts, attitudes* and *consequences*. Objective *knowledge attributes,* such as colour, size, weight, speed, and use instructions can be represented through simple extensional language. However, subjective attitudes, such as fast, fun, beautiful, risky and easy to use are on the other hand intentional. It is therefore argued that whilst *facts* entail *information* available in the external environment, attitudes entail rules that contain associations between extensional fragments of *information in the* environment and *internal states* (emotions). A beautiful smartphone design, an enjoyable browsing experience or an unfriendly user interface are all examples of emotional states associated with fragments of *awareness* of an extensional nature.

Yet, whilst *awareness* can be described as the product of a *learning history, internal states* and *internal events,* it should not be interpreted as their equivalent. It should not be assumed that by exploring *awareness* a complete insight into *internal events* is directly achieved. This is an assumption theories like TAM make by basing exclusively on user perceptions. Various occurrences in data indicate that the factors that influence overt behaviour do not always surface in *verbal behaviour,* and therefore *awareness*. Whilst *awareness* captured in data provides rich valuable insight on the way actors appear to form rules about technologies, it is also important to appreciate that such insight is only partial.

This limitation can be explained by pursuing Skinner's view where introspection is not considered as a direct representation of what happens within the skin. Rather introspection is merely a form of *verbal behaviour* that occurs privately, and therefore does not attract feedback. This implies that when a user describes what he feels privately (introspection) or to others in the social system, he is merely behaving verbally, through the use of language as devised by the verbal community within the external environment (Skinner, 1976). Furthermore, the human's capacity for *verbal behaviour* must be treated as part of an evolved capacity to behave socially. This may mean that internal events that bring no advantage by being shared within the community, whilst still strongly influencing overt behaviour, might never emerge in *awareness*. This could explain why actors were not able to always justify their past behaviours. Equally this could also explain why user's intentions do not always materialise into actual behaviour.

5.2.2 Five dimensions of ICT adoption and use

Five dimensions of ICT adoption and use are proposed and integrated within the proposed framework. It is important to qualify that the identified dimensions go beyond actor perceptions or *awareness* as typically captured in behaviour-intention models. Rather, these represent all elements that have been observed to directly or indirectly influence behaviour. The five main dimensions are defined as follows.

i. ***Utility*** refers to the benefit derived by utilising the ICT as a tool to achieve a change in the environment.

ii. ***Status*** refers to social status (including identity) gained, maintained or lost as a result of being observed accessing, adopting, or using the ICT within a social system.

iii. ***Cost*** refers to indirect aversive repercussions incurred when using the ICT namely the effort of learning and skilling related to mastering a new technology; the disruption caused due to changes in other related and unrelated habitual behaviours; and any aversive financial effects incurred.

iv. ***Pleasure*** refers to the actor's hedonic experience resulting from accessing, adopting, and using the ICT.

v. ***Safety*** refers to any substantial risks an actor may get exposed to when adopting or using the ICT.

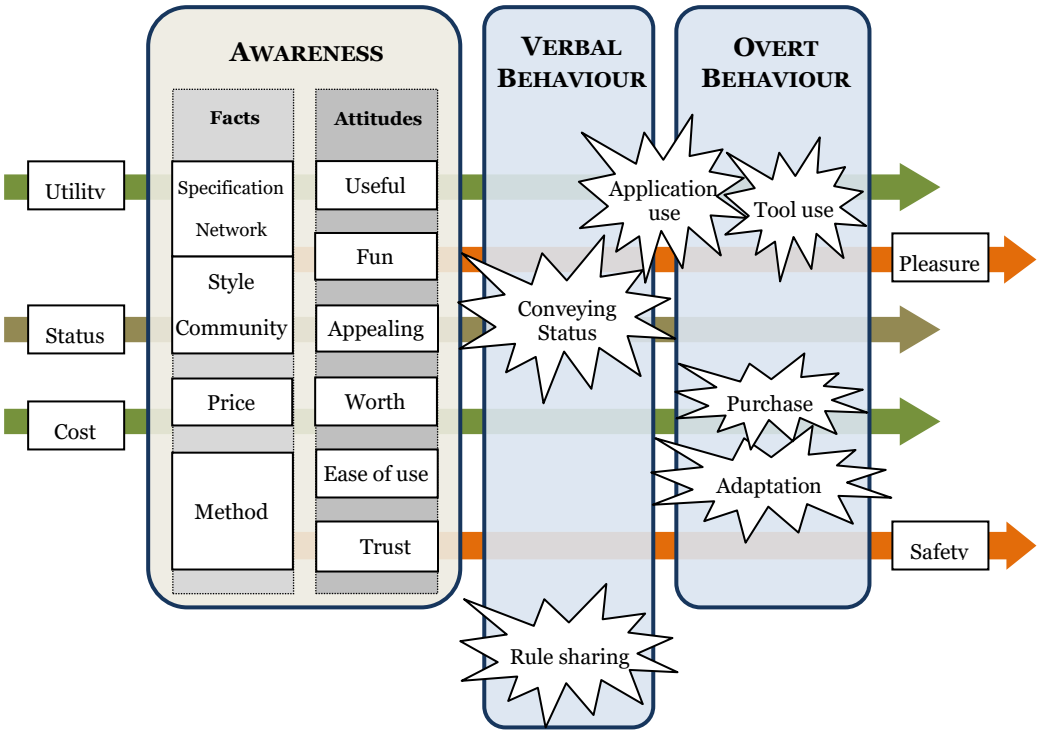


Figure 5.5 - Five dimensions of adoption and use mapped on theoretic framework

Data has shown actors mostly claiming that their behaviour was mostly shaped by utilitarian objectives whilst taking into consideration costs and safety. Yet, on deeper inspection the impact status and pleasure play on behaviour becomes more evident. It is argued that these two dimensions play a much stronger role in behaviour emission than typically represented in studies. This bias originates from the improper treatment of user perceptions.

Status refers to a consumer's position within a social system and his constant efforts to affirm or advance his position within. *Status* is conferred by other members of the social system and communicated and maintained via *verbal behaviour*. *Status* has emerged as a very complex dimension as actors showed an inability to locate and explain *status conveying behaviours* emitted by themselves. However, they emerged highly interested and aware of *status conveying behaviour* emitted by others.

Pleasure, on the other hand, entails the private experience of positive *internal emotion, or lack of, as a result of* behaviour emission.

In the DoI, Rogers (2003, p. 229) qualifies *relative advantage* as "*the degree to which an innovation is perceived as being better than the idea it supersedes"* where technology can be portrayed as an enhancing extension to the user's capacity to achieve goals, therefore functioning more efficiently and effectively. Economic theory and conventional behaviour-intention models, such as the TAM, assume that user exclusively derive advantages form functional utility. Internet banking, contactless payments and Wi-Fi routers are clear examples that fit within such understanding. However, mainstream macro theories and behaviour-intention models, as reviewed in Chapter 2, appear to treat *status* as an exception to the rule as its influence is mostly external to the core theorisation. Its inclusion is often an extension and is seen as a distortion on the diffusion process. An attempt is made in this study to provide a more cohesive understanding that accounts for the influence of status and identity in the emission of behaviour, and furthermore, to account for how and why members of a social system read and react to such factors.

Status conveying behaviour, within the framework, has been proposed as the implicit or explicit communication of identity or social status to other members of the social system as a direct or indirect outcome of adoption or usage of ICT. *Status conveying behaviour* occurrences in data included actor's exposition of affluence, beauty, uniqueness, non conformity, popularity and skill disposition. By applying the proposed framework to describe *status conveying behaviour,* its emission emerges exclusively as a form of *verbal behaviour* that may take one of two forms namely where ICT is applied as a tool to communicate status, or where status is implicitly conveyed by being observed adopting or using the technology. This distinction is important since, as shown in data, it highlights technology serving both as a tool to communicate status, but also as a status statement in itself. ICT can serve as a tool to communicate status such as the instance when an actor's post on Facebook shows his attendance to parties over the weekend. Such post will implicitly convey cues about an actor's happiness, popularity amongst friends and his financial disposition. On the other hand, an actor was perceived as a '*sleeker'* when he was observed by others in possession of an expensive new smartphone.

Data show actors consistently being very careful, although not always consciously aware, how other observers judged their ICT adoption and use behaviours. Actors seemed very cautious in all visible *overt* or *verbal behaviour* emitted as if to ensure that their desired identity and position within their social system is maintained and improved. *Status feedback,* on the other hand, has emerged as the response members within a social system give when *status conveying behaviour* is emitted. Actors, as observers, appeared to pass judgement on such status emissions making distinctions between those they approved and accepted, and others which they rejected. Each *status feedback* emerged as a conferment or otherwise of one's attempt to advance position within the social system or to ascertain identity. For example, actors perceived the use of BlackBerry by a medical doctor and business professionals as legitimate.

Within the proposed framework, pleasure has been represented as an *internal reinforcement* that rewards the actor on emission of behaviour. Repeated experience of such *internal reinforcement* leads to the formation of an *internal state,* emotions, that would subsequently condition emission of behaviour. For the purposes of a parsimonious explanation, all *reinforcements* other than those related to safety are represented as *pleasure*. Pleasure was reported as experienced by actors when benefiting from both utility and status gains. For example an actor reported experiencing pleasure when he was the first amongst his peers to own the latest smartphone. Actors showed satisfaction when using Facebook to coordinate social events for friends. However, apart from utility and social contexts that induce changes in the external environment, pleasure appeared to arise also in situations where no change in the environment was immediately achieved. For example reading an online newspaper or browsing the internet to overcome boredom was reported as a source of *pleasure* although no direct utilitarian or social advantage could be directly reported.

Such apparent wasteful rewarding may be explained as an internal mechanism to incentivise the actor to engage in learning through observation, reflection, building skills, and discovery. Therefore, it may be argued that beyond acting as reinforcer for *overt* and *verbal behaviour*, *pleasure* also reinforces internal events that lead to the development of a *learning history*. Such activity, despite leaving no direct changes in the environment, will help the consumer to prepare for future engagement with the environment, especially where failure might be costly. Novelty seeking traits of adopters are often encountered as an important attribute to initial take-up of

technology such as in Kirton's Adaptors & Innovators theory (Kirton, 1984, 1976) and the '*venturesomeness' of* innovators in Roger's DoI(2003).

Findings also indicate that cost and risk also play an important role in behaviour emission. To retain focus, a deliberate decision was made to focus on the relationship between utility, status and pleasure whilst risk and cost were identified but not explored in detail.

Data shows that actor's consideration of risk was independent from utility considerations and kicked-in very early in *awareness* formation. Future research may explore how user's perceived risk influences the formation of *awareness* and its influence on internal reinforcements (emotion). Future research might also explore the biology behind risk consideration and how this interacts with behaviour emission and the other dimensions. Cost is also another dimension which has been researched thoroughly in economics and behavioural economics. Future research should explore whether cost-utility relationship follows the same patterns and biases when applied to status and pleasure dimensions. Furthermore, it is still unclear whether users would consider disruption and opportunity costs as part of an independent cost dimension, or merely as aversive utility.

5.2.3 Implications for literature

Similarities between the findings of this study and TAM (Davis, 1989) can be noted particularly between *perceived usefulness* and *usefulness qualities,* and *perceived ease of use* and *cost qualities*. It is argued that the other factors identified in this study, namely pleasure and status, do not feature in TAM due to its exclusive application in work and education contexts. This study has argued that introspection on its own offers an incomplete representation of the user's cognitive processes particularly in situations of high social observability and private hedonic experiences. This implies that attempts to extend TAM to account for social and hedonic influences will continue to fail as long as the model continues to rely exclusively on user perceptions, thus elements of *awareness*.

Echoing the finding of this study, research in TAM and similar models have attempted to include new fronts such as status (social) (S. A. Brown et al., 2002; Chen et al., 2007; Hsu and Chiu, 2004; Lee, 2008) and pleasure (hedonic) (Bouwman et al., 2007;

Bruner and Kumar, 2005; Hsu and Chiu, 2004) dimensions. Nevertheless, these extensions are often ad hoc and context specific. Despite its continued application in research, TAM emerges as mostly predictive in closed environments such as in internet banking, online learning, and online shopping to name some examples. The findings of this study support claims in the literature (Bagozzi, 2007; Venkatesh et al., 2007) that the over simplistic approach of TAM has reached a dead-end in its explanatory powers.

Shifting to diffusion theory, little discrimination is encountered between ICT diffusion that takes place in consumer markets and organisations. However, non-utility dimensions, pleasure and status, are not expected to influence organisations in the same as consumers. Organisations may be expected to be driven exclusively by utilitian benefit, whilst consumers should be prone to a more complex paradigm influenced also by status and pleasure. Hence the question that arises, and which could guide future research, is whether there are differences between the bell shaped curve of diffusion in consumer and organisation contexts.

Based on the insight generated it is suggested that diffusion in consumer scenarios is shaped by three primary factors of *utility, pleasure* and *status,* whilst that in organisation contexts is exclusively guided by utility. It is further argued that organisations engage in reactive strategies to address utilitarian problems guided exclusively by organisational goals. Consumers, on the other hand appear to be guided by a mix of evolutionary defined reactive strategies complemented with cognitive capacity. Therefore, whilst consumers and organisations might both be seen as seeking to achieve an advantage by adopting and using ICTs, there appears to be a fundamental difference in the way behaviour is shaped and implemented, and potentially manifested at a macro level.

A second inference emerging from this study concerns what a unit of innovation in the context of consumer ICT entails. In the DoI, Rogers sums innovation as a new idea where its diffusion causes a social change – an alteration in the structure and function of the social system (2003, p. 6). News, new food products, new jargon, a shortcut, a trend or the latest smartphone can all constitute of an innovation. Basing on the distinction made earlier between *tool use* and *application use behaviours*, it is further proposed that in the context of ICT diffusion, two simultaneous innovations emerge and diffuse within a social system. On one level one finds the technological innovation, therefore the development of the hardware and/or software that constitutes the tool.

On a different level one locates the application innovation that entails a change in the way people behave in the context where the technology is applied. For example, the development of Facebook is a technological innovation. Its users, on the other hand are applying the technology to engage in novel ways of interaction.

This distinction is important for technologies that can serve for a multitude of uses. Whilst technological innovation occurs in generations, users may also become innovators as they apply technology to new contexts. Therefore, it might be argued that technological innovation and its novel applications, whilst mutually dependent, constitute of separate forms of innovation each diffusing independently within a social system. A simplistic single distribution curve to represent complex ICTs such as social networks or smartphones may therefore transpire elusive.

5.3 Contributions to practice

The importance of non-utilitarian attributes is no new discovery to practitioners in the field as evidenced by the myriad of ICT cases encountered. Successful positioning strategies, such as those pursued by Apple for the iPhone and Facebook have capitalised on the influence non-utilitarian factors have on users, particularly social status.

Market research typically relies on user accounts captured through feedback, observations, surveys and interviews, to mention a few. In utilising such methods, marketers attempt to explain and predict adoption and usage behaviour by investigating consumer experiences, attitudes and intentions. Too often this entails soliciting user introspection, rationality behind choice and future plans. This data is then treated as the user's decision processes. Literature, as discussed in Chapter 2 and 3, corroborated by this study's findings, indicate that this approach is flawed. The findings of this study suggest that the strength of relying on introspection to explain or predict behaviour weakens substantially when the behaviour under investigation is strongly influenced by non-utilitarian attributes and consequences.

This study, which has investigated ICT use within complex social contexts, has exposed instances of actors being inconsistent in their explanations and justifications of past behaviour. Throughout interviews actors often showed an inability to express clear objectives and consequences for own behaviour emissions. The study found that actors

consistently attributed their behaviour exclusively to utilitarian objectives whilst identifying solely utilitarian consequences. On the other hand, they downplayed the role social status plays on their own emissions, often unable to pinpoint any social consequences. In contrast, findings show that actors were very good at reading *status conveying behaviours* emitted by others they observed and interpreting resulting social consequences. Findings suggest that users are often unaware of their own status conveying behaviours whilst at the same time being very sharp at reading the similar behaviours emitted by others.

It is further argued that the above complexities should not to be treated as cognitive biases or exceptions to the rule. Rather, these complexities should be seen arising from the incorrect assumption that the user's verbal accounts exhaustively reflect the user's cognitive processes. The perspective perused by this study rejects this assumption and suggests that verbal accounts should be treated exclusively as social behaviour.

When users communicate intentions, they do not take decisions. Rather, they take stock of their beliefs (attitudes) and their particular situation, and project the likelihood of their behaviour. Actors might fail to predict their own future behaviour because they are unable to account for elements of learning that do not surface in their *awareness*, and they are unable to predict their emotions state (*internal state*) at the eventual time of behaviour. These distortions are most relevant in hedonic and high social status contexts. This inference tallies with the limitations of behaviour-intention models as discussed in Chapter 2.

In view of the above discussion, one could question why practitioners, and researchers alike, should take into consideration the user's subjective perceptions[5]. One could argue that ultimately, what matters, is overt and measurable adoption and usage behaviour. Adoption and use of ICT can be easily captured and monitored without the need to invoke the ambiguity of user beliefs, experiences and intentions. One can argue that such inquiry should be exclusively approached through quantitative investigation.

Findings suggest that no complete understanding of ICT adoption and use can emerge without accounting for verbal behaviour. Unlike other technologies, ICTs are tools that

[5] See molecular versus molar argument and *intentional behaviourism* in Chapter 3 for academic debate.

serve for interaction purposes and therefore, their application entails verbal behaviour. To understand ICTs, their propagation and use within social systems one therefore also needs to understand what information is carried, the suitability of the tool to carry information effectively, and most importantly, the social context in which such interaction takes place.

The problem for practitioners conducting market research is not the availability of data that is becoming more accessible and richer as technology develops and analytics tools become more sophisticated. The difficulty is how to make sense of what is captured, where to look for, and how to interpret the patterns that emerge. This study has made an attempt to provide a new perspective on how to treat verbal accounts. A conceptual framework is proposed as an interpretative tool to analyse data containing such accounts. Whilst the theory generated can be applied in further qualitative studies, exciting opportunities exist if such understanding is extended to new fronts such as in automated semantic analytics. The insight generated in this study can serve as guide as to where to focus in vast data sets and how to treat semantic expressions.

Building on findings, the proposed framework and the above discussion two tools are proposed to support practitioners in understanding consumer ICT market dynamics. These include: (i) *the ICT Context Matrix* – aimed at mapping social and utilitarian attributes of consumer ICT products and services; and (ii) the *Application Versus Tool Use Behaviour Matrix* – aimed at contrasting *social observability* and *openness* as two desirable non utilitarian attributes for ICT products.

5.3.1 Technology context

A matrix is proposed as a tool to explore and interpret the positioning of an ICT product or service within a user community. The matrix allows for the mapping and interpretation of factual attributes that users assign to ICTs and their applications. It is intended to expose the potential strengths and weaknesses of market positioning strategies especially in the context of competition and disruption.

		Context Attributes	
		Utility	**Social**
Technology Attributes	**Unit**	**Specification**	**Style**
	Aggregate	**Network**	**Community**

Figure 5.6 - Technology Context Matrix

Factual attributes, identified and discussed in Section 5.1.1.1, are mapped over two dimensions namely the context of use and the technological attributes. Context captures all factual descriptions about the social and utilitarian relevance of the ICT and its application. Technology captures all factual descriptions about the specific ICT and its relevance at the aggregate level. Four categories of factual attributes emerge by contrasting these two dimensions which are: *specification*, *style*, *network* and *community*.

The four categories can be defines as follows:

i. ***Specification***– Factual attributes that describe how the ICT is built, how it works, its function and the method of application. All specification attributes contribute directly to the ICT's function.

ii. ***Style***– Factual attributes that shed light on the degree of visibility of the specific ICT and its applications and the observable characteristics of the technology and its use. Style attributes do not contribute directly to the ICT's function.

iii. ***Network***– Factual attributes that describe the penetration level of the specific ICT and its applications, the presence of a critical mass of usage, and network-effects.

iv. ***Community*** – Factual attributes that describe the users and the level of desirability within the community.

The matrix offers an opportunity to represent and contrast different ICTs and to identify the strengths and weaknesses as regards to positioning within the respective categories of the matrix. All factual attributes assigned to a product or its application can be placed in one of the matrix categories. As an example, Figure 5.7 features the factual attributes for the iPhone and Facebook as captured in data.

Specification	**Style**
iPhone build, memory, processor, interface, screen size, iOS, price **Facebook** browser requirements, features, customisation, updates account restrictions, terms of use	**iPhone** trim, colour, sound, design, logo on back, size **Facebook** Number of friends Profile, activity through posts and likes,
Network	**Community**
iPhone connects with other Apple products, switching to other products is difficult **Facebook** Everyone is on Facebook Cannot talk to friends if not on Facebook	**iPhone** used by foreigners and professional designers, in demand **Facebook** Use of Facebook is common Lonely people overuse it

Figure 5.7 - Technology Versus Context Matrix for iPhone and Facebook

It is suggested that successful ICT products tend to compete under all four headings presented in the matrix. The mapping of Facebook and the iPhone on the matrix shows that both technologies attract rich detailed descriptions on all four fronts. A technology with no observability, such as many digital wallets, would be expected to have

attributes that mostly skew towards the specifications and network categories. Extreme fashion-tech, such as some smart watch and headphones models, would be expected to score higher on the community and style categories. A technology that lacks both network externality and observability, a standard hard disc, for example, would be expected to have attributes solely in the specifications category.

The matrix is useful in understanding the level of awareness held amongst the target users and whether it matches a targeted marketing strategy. It can be used to indirectly expose what users prioritise especially between the different market segments. As argued above, different ICTs may be expected to produce different category maps. Furthermore, the interpretative strength of the matrix can be further increased if the maps reported for different user categories, such as demographics and actual usage trends, are contrasted. It is theorised that successful products attract attention in all categories even if this is the sum of patterns emerging from diverse user groups or over time. On the other hand, less successful competitors may be expected to gain attention in some of the categories, but fail to achieve any attention on some of the categories even when user patterns are aggregated. It is therefore suggested that ICTs that can attract attention across all four categories, are in a better position to transition through diffusion stages as defined in diffusion theory (Rogers, 2003). Such ICTs will appeal to all user categories as the product or service diffuses and matures.

The proposed matrix may serve in various situations. In the context of developing a marketing strategy, the matrix can be used to determine the mix of factual information that has to be conveyed to the target user community. It can help to determine which attributes need to be given more importance and visibility in order to challenge competition or to overcome misconceptions. Furthermore in applying the matrix, one must also take into account the diversity within the target audience, the respective subgroups which might require a different message and time – the innovativeness and maturity of the technology.

The matrix can also serve as a tool, together with others, to analyse qualitative and quantitative data. In qualitative research, the tool can be used to ensure that data is captured from all four categories. The matrix can help locate gaps and conflicts in user awareness as well as comparisons with competition across the four categories. Deeper investigation could be sought specifically where conflicts arise between what is expected and the insight derived. The tool may be very useful in quantitative contexts

especially for large data sets. Automated processes may be used to establish correlates between the four attributes and different user groups with the possibility of monitoring over time. Monitoring could assist the marketer generate insight into the maturity of a specific ICT.

5.3.2 Social observability and openness

The second proposed matrix is intended a tool for exploring market positioning by contrasting *social observability* and *openness*. *Social observability* reflects the degree to which the use of a specific ICT attracts *social feedback* by members of a social system. Openness refers to the degree of freedom the user affords in applying the ICT.

A terminology distinction must be made between how *observability* is defined in Roger's DoI(2003) and how *social observability* is introduced in this matrix. In DoI, observability refers to the visibility of behaviour. The more visible the behaviour and its outcome, the more likely others will copy and adopt such innovation. *Social observability* here refers to the status sensitivity the behaviour attracts, therefore the status, or lack of, other members of a social system confer on the emitter. *Status observability* is high if there is widespread recognition of the technology or when its use causes visible deviation from the norm. Not all ICT related behaviour that is visible, undertaken in public, attracts high *social observability*. Telephone sets, for example, despite used in public, are typically mundane objects that, in today's developed environments, attract no attention and bear no social significance. In contrast, ownership and usage of the latest smartphone might carry high *social observability* and therefore might attract feedback from observers that confer on the behaviour emitters identity, group belonging or prestige. Moreover, in social contexts, consumers that deviate from the norm by for example owning an old smartphone will attract negative *social feedback*. The degree of *social observability* is subject to context and relative to the social system.

Behaviour *openness*, proposed in the BPM (Foxall, 2007a) as a dimension of the *Behaviour Setting Scope* within the BPM Contingency Matrix refers to the freedom an actor affords in pursuing behaviour, thus the behavioural options available, where such freedom is restricted by physical, temporal and social elements. Social networks, for example, offer an open environment where a consumer can freely engage in any communications activity desired, and can communicate with any individual present on the platform. Furthermore Facebook provides users with many ways to achieve their

goal. Printers, on the other hand, are restricted in the method and context of application.

The third dimension entails making a distinction between *overt behaviours* that, as proposed in the framework, must be undertaken mutually and simultaneously; namely *tool use behaviour* and *application behaviour*. Such distinction applies exclusively to the use of tools and not other consumption contexts. *Tool use behaviour* refers to the administration of the ICT, therefore the mastering, interfacing and manipulation of technology as a tool. *Application behaviour* refers to the main goal for which the ICT is being applied – mostly communications for ICTs. In many cases the main objective can be still achieved without the use of technology, although less effectively. For example, locating and dialling a friend's number on a smartphone qualifies as *tool use behaviour* whilst talking to a friend will qualify as *application behaviour*. Listening to music on an iPod is *application behaviour* whilst pressing the right buttons to locate, play and control the audio track entails *tool use behaviour*.

New insights emerge by contrasting how paired behaviours for specifc ICTs map in terms of *status observability* and *openness*. Figure 7.6 below features six examples of common consumer ICTs mapped on the matrix. It is important to highlight that mapping can vary across different user groups.

Closed and not socially observable ICTs, such as the D-Link Wi-Fi router, are expected to map in the lower left corner of the matrix. ICTs that lack *social observability* and *openness* include telephone sets, printers, ERP systems and internet banking platforms. It could be argued that such ICT's are often suitable candidates for studies using TAM and other behavioural-intention models as these lack non-utility induced influences. Advertisements of products falling in this category tend to focus on utility such as specifications, expected outcomes, ease of use and pricing.

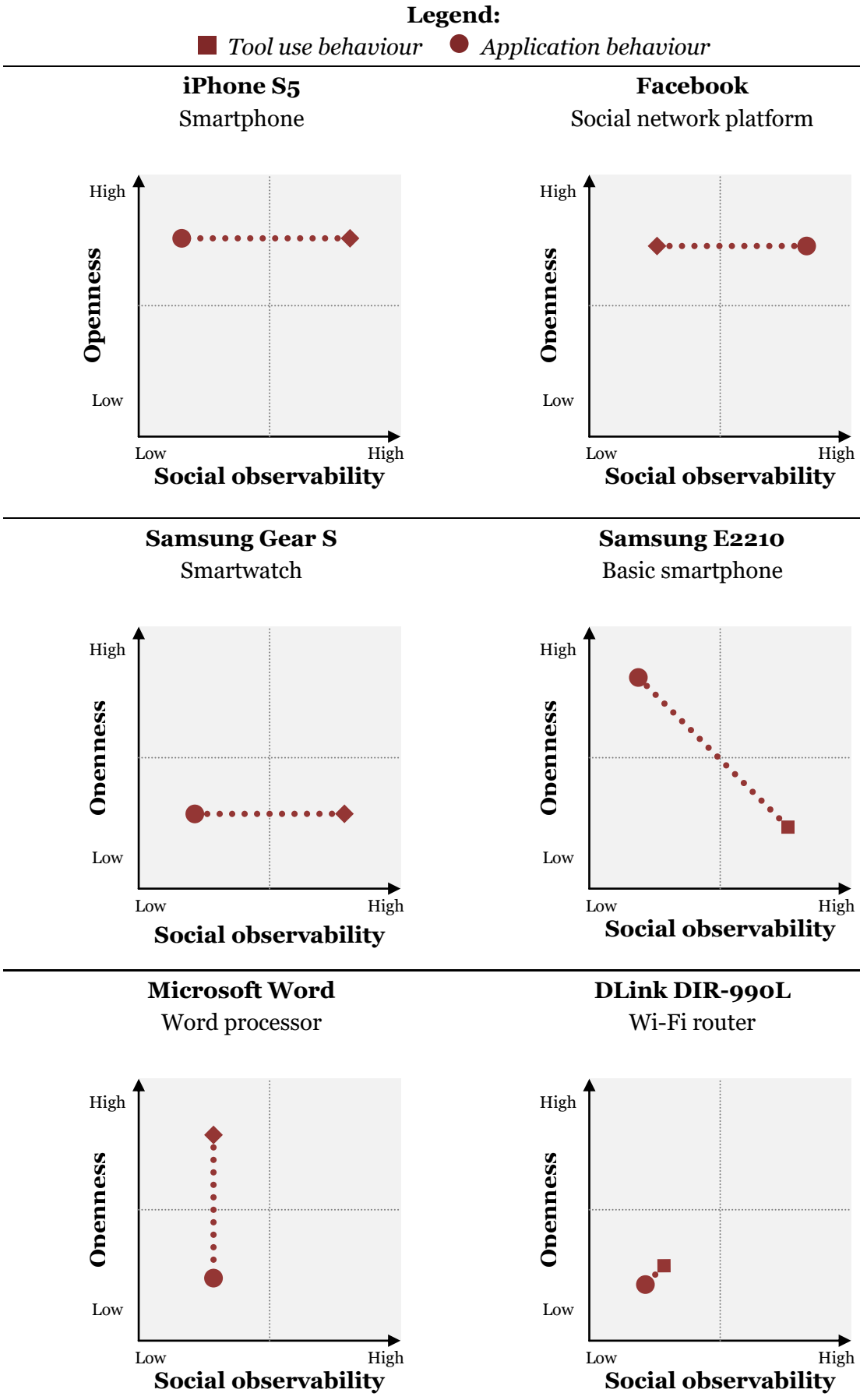


Figure 5.8 - Technologies mapped on Observability versus Setting Matrix

Facebook and the iPhone, both featured prominently throughout this study, map in the top right box as both technologies attract high *openness* and *social observability*. Nevertheless an important distinction emerges. Whilst both behaviours afforded a relative high level of *openness*, the iPhone appeared to register high *social observability* at the *tool use* level, whilst Facebook registered *high social observability* at the *application* level. Actors appeared to win social advantage when they were seen by other members of the social system in possession and making use of an iPhone. Talking, texting and browsing does not attract any social significance. Facebook emerges as the opposite as status was sought through the application of Facebook such as by posting and sharing. Possessing a Facebook account and using it does not attract any social significance.

A different but equally important comparison may be drawn between the iPhone and a basic smartphone such as the Samsung E2210. Both models attract high *social observability* although in opposite directions. Whilst the possession of an iPhone confers prestige, being seen in possession of an old basic model might attract humiliation. Data show a number of instances where actors felt uneasy being seen using old or basic technologies because of the negative feedback their behaviour could attract.

The proposed matrix mapping can be used to explore strategies behind some successful positioning strategies. High *social observability* strategies leverage on high status sensitivity through strong branding, design and pricing. Examples could include Nokia's 3310, Sony's Walkman and Diskman, Apple's iPod and iPhone, and Beats headphones at their respective time and market contexts. These technology products have disturbed markets dominated by equally proficient and sometimes more mature competing products that have failed to capitalise on the status dimension. Microsoft and Google, on the other hand, appear to have leveraged mostly on giving consumers more openness than competition by empowering users with flexible software and incentivising other software companies to build solutions on their platform. Openness might however come at the cost of complexity which in the proposed framework is represented as *ease of use* and which deters behaviour emission.

The above account is by no means exhaustive as the context of diffusion is usually more complex due to network effects, developments in competing, complementing technologies, and political and cultural developments to mention but a few. However,

from insight derived from data and literature it could be argued that some of the successful strategies that have led to disruptions in mature consumer markets have been based on non utility attributes particularly on offering added *openness* and/or higher *social observability*.

5.4 Chapter conclusions

This chapter has outlined and discussed the findings and their implications on theory and practice. Data exposed five incommensurable dimensions guiding consumer ICT adoption and use namely: utility, status, cost, pleasure, and safety. It has been argued that consumer behaviour is shaped by simultaneous factors located across some or all five dimensions.

A conceptual framework that bridges findings emergent from data and insight from the CBA programme has been proposed. The framework is intended to serve as an interpretative tool for ICT adoption and use. Practical implications have been discussed and two practitioner tools are proposed in the final part.

6 Is it useful, appealing and fun?

> *"A theory does more than provide understanding or paint a vivid picture; it enables users to explain and predict events, thereby providing guides to action" (Strauss and Corbin, 1998, p. 25).*

This study has explored adoption and use of consumer ICTs with a focus on how non-utilitarian factors influence behaviour. Research in the field has predominantly explored the topic within closed and private contexts, such as work and education environments. It has been argued that practice and theory frequently assume that users adopt and use ICTs for utilitarian goals whilst other influences, whilst acknowledged, are often sidelined or treated as exceptions. This study finds that beyond utility, users seek social status and pleasure whilst minimising costs, and averting risks.

The study is novel in the way it has combined an inductive strategy with a Skinnerian radical behaviourist philosophical worldview. Insight from the CBA Programme, particularly *intentional behaviourism*, served to extend Skinnerian interpretation of behaviour to a new context. In contrast to other studies in the field, verbal accounts and group interaction were treated and analysed as social behaviour whilst perceptions and intentions were not inferred as user decisions.

One is guided to consider this study and the theory it proposes as a contribution within a wider progressive programme. A qualitative method was sought as fresh objective insights were needed for a complex phenomenon. GTM was chosen for its adequacy to build theory and for its inductive underpinning, found compatible with a radical behaviourist stance. The contribution of this study can therefore be summed as generation of formal theory, consisting of a conceptual framework and a series of theoretic inferences, to serve as possible avenues for future scholar debate and research, as well as interpretative tools for application in practice. Furthermore, this study has contributed to the CBA programme by extending its application to new contexts, whilst also, venturing into a relatively novel combination of research strategy and method.

Glaser and Strauss(1967), the originators of GTM, contended that theory should be based on data. They argued that theory is destined to last when it emerges from data since only then it cannot be completely refuted or completely displaced by other theory. Has this study succeeded in fulfilling GTM's inductive mantras? Are the inferences of this study robust and relevant?

To answer these questions, the five guidelines to theory discovery proposed by Glaser and Strauss (1967, p. 3) are reconsidered in light of this study's conclusions.

i) *Theory should enable prediction and explanation of behaviour:*

Theory that emerges from this study is specifically intended to explain consumer adoption and use of ICTs. The study has focused on verbal behaviour, as a proxy to understanding behaviour and consequences, explicit and implicit. The proposed theory goes beyond current understanding as it cohesively factors within non-utility factors.

A map of user *awareness* has emerged making objective distinctions between factual attributes, subjective attitudes and outcomes. *Awareness* also emerged in five incommensurable dimensions that beyond utility also include pleasure, status, risk and cost.

ii) *Theory should be useful in theoretical advances in sociology:* The study makes a number of theoretic arguments that can serve to provoke future research on both the individual user and at the macro level where the aggregate of behaviours manifest as diffusion patterns, product generations, and network externalities, as examples. The main objective of this study stemmed from a need to challenge leading macro theories that are based on the assumption that consumers maximise utility. This study suggests that the relationship between utility and behaviour emission declines when emissions take place in open and social contexts.

iii) *Theory should be applicable in practice:* The emergent theoretic insight is intended to give practitioners a new angle on consumer behaviour specifically in open and social contexts. It is argued that practitioners

should be cautious in the way they interpret user introspective accounts especially when behaviour is influenced by social status. It is suggested that verbal accounts should be considered important and highly relevant but not exhaustively representative of how users make their adoption and use decisions. Findings suggest that verbal accounts, if treated appropriately, remain an important and valuable source of data. Verbal accounts can provide insight on the awareness levels in the market exposing what users prioritise and maximise. Verbal accounts can serve to expose the social dimension of adoption. Also proposed in the study are two interpretative tools intended to aid practitioners explore market positioning for ICTs.

iv) *Theory should provide a perspective on behaviour:* The contribution of this study goes beyond relationships between factors. It adopts a new perspective on behaviour – what and how to observe and interpret adoption and use. A conceptual framework that parsimoniously but cohesively describes user behaviour is also proposed. The novelty of the framework lies in its ability to account for private states and events, as well for social status.

v) Theory must guide and provide a style for research on particular areas of behaviour:

The study has drawn a number of inferences that can be verified in future study through quantitative investigations. Other insights, especially those at the personal level, will remain hypothetical as no opportunity for measurement is possible at present. On the practical side, the various inferences drawn above may be applied as interpretative tools by market analysts.

6.1 Limitations of study

The deliberate choice from the outset to use the tenets of the CBA programme in addressing the research topic might attract criticism. As stated from the start, no claim is being made that this is the only or the best approach to explain user behaviour. *Radical behaviourism* was pursued by the researcher as it presented a novel perspective through which new insight could be discovered. To this extent it is understood that not only has this research contributed by showing a potential robust

way of accounting coherently for both intentional and extensional dimensions of ICT adoption and use, but it has also contributed to the same CBA front by applying and extending understanding to new consumer contexts.

The broadness of the chosen topic, consumer ICT adoption and use, also meant that the researcher had to deliberately focus his efforts on some literature fronts and choose not to sideline other mature and legitimate fronts. Cost and risk are two non-utilitarian fronts that have been identified in the study but which have not been explored in-depth. Equally the vast body of literature on brands has been sidelined. This was deliberately done to preserve a focus and a manageable study in what otherwise would be an overwhelmingly complex multidisciplinary and epistemologically inconsistent endeavour. It must also be conceded that vast literature on status, hedonism and addiction, to mention a few topics, are readily available in the context of consumer ICT adoption and use and range from economics to cognitive psychology. Whilst the researcher has no knowledge of similar studies which have pursued a similar worldview and method, other alternative valid attempts may exist. Future inquiry may explore whether the insight proposed in this study contrasts, corroborates or supplements insight generated on other discipline fronts.

It is imperative to stress that this project follows an inductive strategy that is inherently limited in generalisability and transferability. Findings reflect the chosen population that include adult technology users from a mature consumer market and no claims may be made for other consumer contexts or situations. This approach is justified by the inductive nature of the research question. Furthermore, the inferences put forward in this study are all exclusively derived from verbal accounts - interviews and focus groups. While the discussion explores elements such as *internal states* and the *learning history,* these have not been observed directly and inferences have been derived by contrasting data with the understanding available in literature, and through the theoretic lens of *intentional behaviourism*. The proposed framework, including its components and their relationships, must be considered as a tentative understanding of the phenomenon whilst empiric support is left to future investigations.

It is also important to acknowledge that this study is located in a postpositivist worldview with a core assumption that consumers, as humans, share a universal sub-personal structure defined by a common biology and evolutionary history. Whilst consumers have different experiences and situations (learning history), a common

foundation that induces and regulates behaviour is assumed common amongst all consumers. Future inquiry should question the extent of this core assumption. Whilst a degree of universality is already clearly backed by scholar understanding a new frontier should seek to discover whether beyond the external environment, culture, *learning history* and *internal states*, the sub-personal is indeed universal amongst all consumers. An argument of nature versus nurture inquiry may therefore shed new light on consumer behaviour and biological distinctions between different categories of consumer adopters. Future research should continue to explore how biological difference at the sub-personal level, such as sex, age, race and other personality traits influence adoption and use behaviours.

A further important limitation of the study is the lack of distinction between adoption and continued use. This is an important distinction that would merit attention in future. Literature (Bagozzi, 2000; Foxall, 2007a; Rogers, 2003) suggest that when behaviour becomes habitual it becomes automatic and surfaces less in *awareness*. *Intentional behaviourism* offers an opportunity to evolve this distinction in the consumer ICT realm. Recent literature in *intentional behaviourism* (Foxall, 2016) proposes new avenues of explaining consumer habitual and addictive behaviour by delving into the sub-personal and exposing causalities.

In conclusion it must be acknowledged that the inductive nature of the research and the aspiration to achieve parsimonious understanding equates the risk of incompleteness and reductionism. Inferences emerging from this study are based on phenomena as observed in the investigated context. This comes with a risk where potentially relevant but peripheral elements have been omitted to make interpretation easier. This is a cost and risk to be borne in the process of theory generation.

6.2 Future research

A central topic of consumer behaviour that has remained mostly unexplored in this study entails branding. Brands such as Apple, Facebook and Android have repeatedly surfaced in actor accounts and strong brand loyalty was observed. The notion of brand consumption is addressed in CBA with a focus on understanding how consumers maximise on the utilitarian and informational (status) benefits within the e-BPM framework (Foxall et al., 2013, 2004; Ji Yan et al., 2012; Oliveira-Castro et al., 2015,

2015, 2010). With *intentional behaviourism* such discussion can be further developed to allow for experiences at the personal level (Foxall et al., 2012).

Future research should explore how the strong network effect in ICT consumer markets influences brands through both utilitarian and informational (status) dimensions. Branding and its relation to the openness and social observability, as proposed in the matrix in Section 5.3.2, is also promising. Future brand study might explore how the distinction between tool and application, adoption and use behaviour can reflect in branding and consumption (see Section 5.3.1). Whilst the technology can be branded as any product on the market, applications develop organically and many times by the user. Future research might explore whether specific applications of ICTs can be branded and how does such branding influence consumer behaviour.

The increasing convergence between psychology and neurology is promising and unprecedented perspectives on behaviour and cognition will undoubtedly continue to emerge in the near future. Future multidisciplinary research in consumer behaviour is expected to shed more insights whereby theory proposed, like that in the present study, can be supported, further developed or refuted. Furthermore, this study has shown that tool use behaviour is to a degree more complex than other consumption situations typically encountered in CBA. As exposed and discussed in this study, tool use entails two behavioural dimensions namely tool manipulation and application. This distinction did not emerge in the literature reviewed. Furthermore, tool manipulation is a human capacity and an evolutionary perspective would point towards specific evolved cognitive structures that shape behaviour emission. Like *verbal behaviour*, understanding how the brain deals with tool manipulation is important for a complete understanding to emerge.

From a macro perspective, future research might focus on identifying and exposing how the introduction of *pleasure* and *status* dimensions can influence and skew the diffusion curve in ICT consumer situations. Cases such as the Apple's iPhone show how new entrants in mature markets can gain entry by leveraging on *status* related advantage. The same appears to happen when *openness* advantages are introduced such as the advent of Android OS system which allowed Google to enter into a crowded saturated smartphone OS market. Future study may investigate the diffusion curve of different ICT products in different market contexts.

Further avenues for future study in the domain of diffusion include the influence *social observability* and *openness*, as defined in this study, have on network effect. Network externalities are by default assumed to reflect the added utility derived by a user as the user base increases. However the network effect could be subject to *status observability* in that the more people become aware of the technology and its status attributes, the more status value will be derived by its adopters and users. A similar argument can be made for openness where the more adopters and users use ICT, the more openness is achieved as more communication opportunities arise. This implies that network externalities are compounded in ICT consumer contexts.

6.3 Discovering what's beyond utility

This study has explored the factors that interact and influence the user's adoption and use of ICT. It differentiates from other research pursued in the field as it has combined an inductive strategy with a radical behaviourist philosophical position. This study is marked by the way it has treated data, verbal accounts captured via interviews, where actor interactions have been considered and analysed as behaviours and not as user cognition.

The interest in this study stemmed from a need to better understand why consumer ICTs, such as smartphones and social networks, do not follow the basic tenets found in theories such as TAM (Davis, 1989). As shown in data, some actors based their choice of smartphones on colour, others browsed the internet when they felt bored, and many were very meticulous in the way they presented themselves on social networks. As evidenced by these examples and by building on literature, the study has argued that a traditional narrow understanding of utility maximisation might not be enough for a complete understanding of behaviour to emerge.

This study shows that besides utility, users seek social status and personal enjoyment whilst considering safety and costs. Furthermore, it has also shown that users are not always consciously awareness of all the dimensions shaping behaviour. Such outcomes have fundamental implications on both practice and theory.

Does this study therefore contradict the economic assumption that users seek to maximise utility? If users emit behaviours without deriving tangible utility benefits, then what do users maximise and what lies beyond utility?

It is argued that theory is incomplete if it accounts only for what is observable in the environment. Theory will also fail if verbal accounts are construed as cognition and user choice. The insight emerging from this study suggests that users maximise all forms of gain that derive from behaviour, where gain is experienced privately as pleasure, as changes caused to the environment or as social advancement. Through a proper treatment of all these dimensions, an exhaustive explanation of adoption and use of consumer ICTs is more likely to emerge.

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Appendix 1: Research instrument

CONSENT TO PARTICIPATE IN INTERVIEW

Thank you for accepting to participate in my research study.

I am Bernard Agius, studying at the Durham Business School, UK and my study is about how people feel about ICT (i.e. mobiles, computers etc..) and what induces them to adopt these technologies.

Thank you for accepting to take part in this Focus Group. We will be talking about adoption and use of smartphones and social networks.

The results of this study will be used in my DBA Thesis.

- *This interview is voluntary. You have the right not to answer any question, and to stop the interview at any time. The interview will take about two hours.*
- *This interview will be recorded.*
- *All information you provide will be treated as confidential and any contribution and reference will be anonymised.*

Part A – Introduction

Roundtable: I wish to start by doing a roundtable – please state your name, age, gender, level of education, and employment position. How conversant do you feel using technology in general?

Part B - Smartphone

Roundtable: How many calls do you usually do per day? Do you speak for long time? Do you find the mobile phone expensive? How much does the mobile phone cost per month?

Roundtable: I need each participant now to show his mobile phone to his peers and state the make, and speak a bit about it and why he uses it. I am particularly interested to know why you chose it and whether it was worth the money. Are you happy with it?

General questions put forward to group

- Which mobile phone is best? Why? Who owns such a phone?
- Is €800 for a mobile phone a lot? Why do people spend so much money on mobile a phone?
- Some of you said that they like the design of the phone. What aspects of the design make you like your mobile phone? What difference does it make to you?
- How many of you use mobile data. What do you use it for? Is it expensive?

Now I am going to show you some images and I want you to comment on what you are seeing.

- Show image set 1: Photos of mobile phones
- Invite discussion on the behaviours of other people

Part C – Social Networks

Roundtable

Do you have an account with Facebook, Twitter, LinkedIn or other? How often do you use SNs? How many friends do you have?

Roundtable: Why do you (or not) use SN? What do you do on SNs?

General questions put forward to group

- How can a person have 500 friends? OR Do you really know all your friends? (if a participant has many friends)
- Why do people use SNs? What do people do on social networks?
- Are SNs a good thing?

Now I am going to show you some images and I want you to comment on what you are seeing.

- Show image set 2: Images related to SN use
- Invite discussion on how they and other people behave on SNs.

Part D – Conclusion

- Sum up and thank the participant.

Appendix 2: Focus group participants

	Actor[6]	Group	Age	Sex	Occupation
1	Aldo	3	20 - 25	Male	Educator
2	Darren	2	18 - 20	Male	Student
3	Keith	2	18 - 20	Male	Student
4	Karen	2	18 - 20	Female	Student
5	Lawrence	2	18 - 20	Male	Student
6	Mario	2	18 - 20	Male	Student
7	Romina	2	18 - 20	Female	Student
8	Sandra	2	18 - 20	Female	Student
9	Dylan	1	18 - 20	Male	Technician
10	Marthese	1	31 - 35	Female	Clerical
11	Mauro	1	26 - 30	Male	Public officer
12	Andrea	3	20 - 25	Male	Educator
13	Roberta	1	31 - 35	Female	Public officer
14	Stephanie	1	20 - 25	Female	Clerical
15	Stella	1	26 - 30	Female	Public officer
16	Yvonne	1	20 - 25	Female	Public officer
17	Alessia	4	20 - 25	Female	Medical Doctor
18	Alfred	4	20 - 25	Male	Medical Doctor
19	Annalisa	4	20 - 25	Female	Dentist
20	Josephine	4	20 - 25	Female	Medical Doctor
21	Julienne	4	20 - 25	Female	Medical Doctor
22	Martha	4	20 - 25	Female	Medical Doctor
23	Annabelle	3	20 - 25	Female	Educator
24	Maryrose	4	20 - 25	Female	Medical Doctor
25	Valerie	4	20 - 25	Female	Medical Doctor
26	Astrid	3	26 - 30	Female	Educator
27	Eleanor	3	20 - 25	Female	Educator
28	Loraine	3	20 - 25	Male	Educator
29	Matilda	3	20 - 25	Female	Educator
30	Peter	3	20 - 25	Male	Educator
31	Claudette	2	18 - 20	Female	Student

[6] All actors have been assigned fictitious names.

Appendix 3 Initial findings from one to one interviews

While the data captured through interviews provided a good initial outlook on the themes to emerge in the focus groups, it did not offer any opportunity to observe and record social interactions. However the face-to-face interviews served to sharpen both line of inquiry and potential discussion instigators to be used in the subsequent group phases.

From the outset, the interviews managed to elicit a distinction between utility and non-utility attributes and potential factors influencing behaviour. A relatively unplanned, however relevant, outcome that emerged from this initial exercise was the continuous reference to behaviours of third persons actors made. This outcome was considered as a potential opportunity to explore how informational reinforcement works.

The below are the preliminary conclusions that provided direction for the development of focus groups in phase two:

i. Actors appeared to belief that their decisions are mostly driven by utilitarian factors like efficiency, and ease of use. Unless solicited, actors only focused around the core tech attributes namely the specs, the versatility, the cost, and how the tool's applications fitted their needs. All actors felt that the cost of a smartphones should reflect its utilitarian features.

ii. The interviewer had difficulty soliciting discussion at length about the utilitarian attributes of both smartphones and social networks. Actors, who were all relatively tech savvy, seemed uninterested in going into detail about the tech aspects, often giving short statements as a reply. Discussion on tech aspects exhausted very quickly.

iii. On the other hand, it was noted that getting actors to talk about the non-utility factors influencing their behaviour is difficult. All actors seemed to believe that they were immune to the non-utility factors that influence behaviour although there was common agreement that the behaviour of most people they know,

'others', are guided and subject to such influences mainly recognition and status seeking.

iv. As a result, actors were very eager to talk about what others do – consistently challenging the legitimacy of how 'others' behave. All actors seemed eager to bring up examples of acquaintances that use technology, both smartphones and social networks, to convey false status related messages about themselves.

v. When actors were pressured to elaborate on the reasons behind their choice of smartphone and their behaviours on social networks, a level of confusion emerges. Actors seemed not able to provide complete and coherent answer as to why for example they need a phone 'which looks nice'. Actor reactions showed that a need for some time to think and come up with explanations that justified their behaviour.

vi. All subjects except one agreed that Smartphone design was an important factor that conditioned their choice. However, when questioned to explain further, actors appeared confused either attributing the importance of design to the usability and ergonomics of the technology, or simply a laughter and puzzlement as an indication of their inability to explain.

Data collection in phase one was concluded when an early pattern started to emerge enabling a more objective and focused group interviews to be undertaken.

Appendix 4: Consent forms

Durham Business School

Ethics in Research

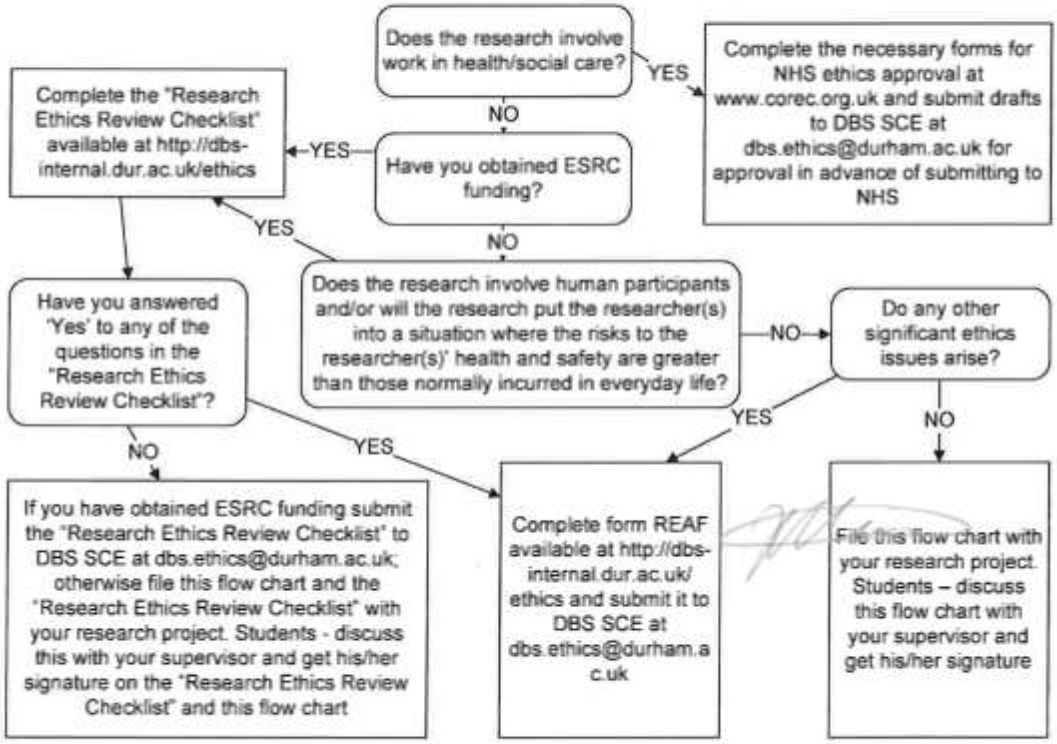
Process flow chart for students and staff undertaking research

Note: all research can potentially raise ethical issues. The focus here is on research involving human participants, but consideration should also be given to ethical issues that may arise in connection with research that does not involve human participants. In all cases research is governed by the University's "Policy for the maintenance of good practice in research" which is available at http://dbs-internal.dur.ac.uk/ethics and should be read in conjunction with this process flow chart. This process flow chart applies to each discrete research project and it is suggested that this flow chart is completed for each such project.

Please complete the details as requested below and highlight either 'YES' or 'NO' after each box to show your route through the flow chart. "DBS SCE" refers to Durham Business School's Sub-Committee for Ethics throughout.

Title of Project: *Beyond Utility: An inductive investigation into non-utility factors influencing consumer adoption and use of ICT*

Name of Principal Researcher
or anonymous code of student: *Bernard Agius*



Signature of Principal Researcher or Supervisor:

.....

Durham University
Business School

ETHICS **FORM B**: REVIEW CHECKLIST

"DUBS SCE" refers to Durham University Business School's Sub-Committee for Ethics throughout.

This checklist should be completed for every research project that involves human participants. It should also be completed for all ESRC funded research, once funding has been obtained. It is used for approval or to identify whether a full application for ethics approval needs to be submitted.

Before completing this form, please refer to the University's "Ensuring Sound Conduct in Research" available at http://dbs-internal.dur.ac.uk/ethics/default.aspx – all researchers should read Sections A, B and F; Principal Investigators should also read Section D. The researcher and, where the researcher is a student, the student and supervisor are responsible for exercising appropriate professional judgement in this review.

This checklist must be completed before potential participants are approached to take part in any research.

Section I: Project Details

1. Project title: *Beyond Utility: An inductive investigation into non-utility factors influencing consumer adoption and use of ICT*

2. Start date: *April 2011* Expected End date: *April 2016*

Section II: Applicant Details

3. Name of researcher (applicant)
   Or student: *Bernard Agius*

4. Status (please delete those which are not applicable)

   Postgraduate Research Student

5. Email address
   (staff only):

6. Contact address: *68, York, St Lucy Street, Naxxar*

7. Telephone number: 0035699422389

Section III: For Students Only

8. Programme title: DBA

9. Mode (delete as appropriate)

   Part Time

10. Supervisor's or module leader's name: *Christos Tsinopoulos*

11. Aims and Objectives: Please state the aims/objectives of the project

The study entails an inductive investigation into the underlying factors that influence consumer ICT adoption and use. The study seeks to expose and investigate 'non-utilitarian' factors influencing ICT adoption and use behaviour, locate and explore gaps in the intention-behaviour link, and propose alternative parsimonious explanation.

12. Methodology: Please describe in brief the methodology of the research project

Data will be collected through face to face interviews and focus group discussions focusing on the use of social networks and smartphones. Target aged between 18 and 40 years.

13. Will data be collected from participants who have not consented to take part in the study e.g. images taken from the internet; participants covertly or overtly viewed in social places? If yes, please give further details.

Research will be overt with all actors participating voluntarily and giving informed consent prior the start of the interviews. Information about research objectives and participant rights will be read and explained. All participants will be adults able to give informed consent. Interviews will take place face to face in a public natural setting.

The identity of participants' will be verified either directly through identification or inferred through confirmation by other acquaintances taking part in the study.

*Ethical guidelines (BPS, 2005) note that, *unless consent has been sought, observation of public behaviour takes place only where people would reasonably expect to be observed by strangers.*

†It is advised that interactive spaces such as chat rooms and synchronous and asynchronous forums be treated as private spaces requiring declaration of a research interest and consent.

Additional guidance on internet research can be obtained at:
http://www.bps.org.uk/sites/default/files/documents/conducting_research_on_the_internet-guidelines_for_ethical_practice_in_psychological_research_online.pdf

14. Risk assessment: If the research will put the researcher(s) into a situation where risks to the researcher(s)' health and safety are greater than those normally incurred in everyday life, please indicate what the risks are and how they will be mitigated. (Please note that this also includes risks to the researcher(s)' health and safety in cases of international research and in cases where locally employed Research Assistants are deployed).

Research which will take place outside the UK requires specific comment. (Note that research outside the UK is not automatically covered by the University's insurance. See the DUBS intranet site (http://dbs-internal.dur.ac.uk/ethics/default.aspx) for further details).

The study is not expected to put the researcher in any extraordinary risk.

For student research the supervisor should tick the following, as appropriate. The study should not begin until all appropriate boxes are ticked:

☒ The topic merits further research

☒ The participant information sheet or leaflet is appropriate (where applicable)

☒ The procedures for recruitment and obtaining informed consent are appropriate (where applicable)

Comments from supervisor:

Section IV: Research Checklist

Research that may need to be reviewed by NHS NRES Committee or an external Ethics Committee (if yes, please give brief details as an annex)	YES	NO
1 Will the study involve recruitment of patients or staff through the NHS or the use of NHS data or premises and / or equipment?[1]	☐	☒
2 Does the study involve participants age 16 or over who are unable to give informed consent? (e.g. people with learning disabilities: see Mental Capacity Act (MCA) 2005). **Please note:** - That with regard to 1 and 2 on the previous page, all research that falls under the auspices of MCA must be reviewed by NHS NRES.	☐	☒

Footnotes

[1] Research in the NHS may be classified as "service evaluation" and, if so, does not require NHS research ethics approval. In such cases, prior written confirmation that the research is considered to be service evaluation is required from the appropriate authority, and on receipt of this the "No" box may be ticked and this form used for ethics approval. Advice and assistance is available from business.ethics@mds.ad.dur.ac.uk

Research that may need a full review by Durham University Business School Sub –Committee for Ethics (DBS SCE)

3	Does the study involve other vulnerable groups: children, those with cognitive impairment, or those in unequal relationship e.g. your own students? [2]	☐	x
4	Will the study require the co-operation of a gatekeeper for initial access to the groups or individuals to be recruited? (e.g. students at school, members of a self-help group, residents of a Nursing home) [3]	☐	x
5	Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g. deception, covert observation of people in non-public places)	☐	x
6	Will the study involve discussion of sensitive topics? (e.g. sexual activity, drug use)	☐	x
7	Are drugs, placebos or other substances (e.g. food substances, vitamins) to be administered to the study participants or will the study involve invasive, intrusive or potentially harmful procedures of any kind?	☐	x

Research that may need a full review by Durham University Business School Sub –
Committee for Ethics (DBS SCE) (continued)

8	Will tissue samples (including blood) be obtained from participants?	☐	x
9	Is pain or more than mild discomfort likely to result from the study?	☐	x

Footnotes

[1] Research in the NHS may be classified as "service evaluation" and, if so, does not require NHS research ethics approval. In such cases, prior written confirmation that the research is considered to be service evaluation is required from the appropriate authority, and on receipt of this the "No" box may be ticked and this form used for ethics approval. Advice and assistance is available from **business.ethics@mds.ad.dur.ac.uk**

[2] Vulnerable persons are defined for these purposes as those who are legally incompetent to give informed consent (i.e. those under the age of 16, although it is also good practice to obtain permission from all participants under the age of 18 together with the assent of their parents or guardians), or those with a mental illness or intellectual disability sufficient to prevent them from giving informed consent), or those who are physically incapable of giving informed consent, or in situations where participants may be under some degree of influence (e.g. your own students or those recruited via a gatekeeper - see footnote 3). Where students are perfectly able to choose to be involved and to give informed consent then, so long as there is no impact on assessment, the "No" box may be ticked.

[3] This applies only where the recruitment of participants is via a gatekeeper, thus giving rise to particular ethical issues in relation to willing participation and influence on informed consent decisions particularly for vulnerable individuals. It does *not* relate to situations where contact with individuals is established via a manager but participants are willing and able to give informed consent. In such cases, the answer to this question should be "No."

		YES	NO
10	Could the study induce psychological stress or anxiety or cause harm or negative consequences beyond the risks encountered in normal life?	☐	☒
11	Will the study involve prolonged or repetitive testing?	☐	☒
12	Will the research involve administrative or secure data that requires permission from the appropriate authorities before use?	☐	☒
13	Does the research involve members of the public in a research capacity (participant research)?	☐	☒
14	Will the research involve respondents to the internet or other visual / vocal methods where methods are covert, intrude into privacy without consent, or require observational methods in spaces where people would not reasonably expect to be observed by strangers?[4]	☐	☒
15	Will the research involve the sharing of data or confidential information beyond the initial consent given?	☐	☒
16	Will financial inducements (other than reasonable expenses and compensation for time) be offered to participants?[5]	☐	☒

Section V: What to do next

If you have answered '**No**' to all of the questions:
Undergraduate and Postgraduate taught students should discuss this with their supervisor, obtain his or her signature and submit it with their business project or dissertation.
DBA / MPhil / PhD students should discuss this with their supervisor, obtain his or her signature and submit it as part of the transfer / 9 month review process and with their thesis.
Work that is submitted without the appropriate ethics form may be returned un-assessed.
Members of staff should retain a copy for their records, but may submit the form for approval by DUBS SCE if they require approval from funding bodies such as ESRC. *In such cases, the letter of invitation to participate, Participant Information Sheet, Consent Form and, where appropriate, the access agreement should also be submitted with this form.*
Please note that DBS SCE may request sight of any form for monitoring or audit purposes.

If you have answered '**Yes**' to any of the questions in Section IV, you will need to describe more fully how you plan to deal with the ethical issues raised by your research. This does not mean that you cannot do the research, only that your proposal will need to be approved by the DUBS SCE.

Contact the Chair of the DUBS SCE in the first instance to discuss how to proceed. You may need to submit your plans for addressing the ethical issues raised by your proposal using the ethics approval application form REAF, which should be sent to the committee at business.ethics@mds.ad.dur.ac.uk.

(Continued overleaf)

Footnotes

[4] This does not include surveys using the internet providing that the respondent is identifiable only at their own discretion.

[5] In experiments in economics and psychology in particular it is common to pay participants. Provided such payments are within the normal parameters of the discipline, the answer to this question should be "No."

(Form REAF can be obtained from the School Intranet site at **http://dbs-internal.dur.ac.uk/Pages/Default.aspx** or using the student / visitor access:-

http://dbs-internal.dur.ac.uk/ethics

Username: **dubs\ethicsvisitors**
Password: **durham**

If you answered 'yes' to Questions 1 or 2 in Section IV, you will also have to submit an application to the appropriate external health authority ethics committee, but only **after** you have received approval from the DUBS SCE. In such circumstances complete the appropriate **external** paperwork and submit this for review by the DUBS SCE to **business.ethics@mds.ad.dur.ac.uk**.

Please note that whatever answers you have given above, it is your responsibility to follow the University's "Ensuring Sound Conduct in Research" and any relevant academic or professional guidelines in the conduct of your study. **This includes providing appropriate participant information sheets and consent forms, abiding by the Data Protection Act and ensuring confidentiality in the storage and use of data.**

Any significant change in research question, design or conduct over the course of the research project should result in a review of research ethics issues using the "Process Flow Chart for Students and Staff Undertaking Research" and completing a new version of this checklist if necessary.

Declaration

Signed: .....

Date: 1/11/16

Student / Principal Investigator

Signed: .....

Date: 1/11/2016

Supervisor or module leader (where appropriate)

Appendix 5: Instrument exhibits

Exhibit

1.1

1.2

1.3

1.4

1.5

1.6

1.7


Everyone is doing it now.
Are you?
BlackBerry
Safaricom

1.8

1.9


SAMSUNG
BlackBerry
htc

1.10


Everyone wants what
not everyone can have
MONT BLANC

1.11

1.12


I'm a PC.
I'm a Mac.

2.1

2.2

2.3

2.4

2.5

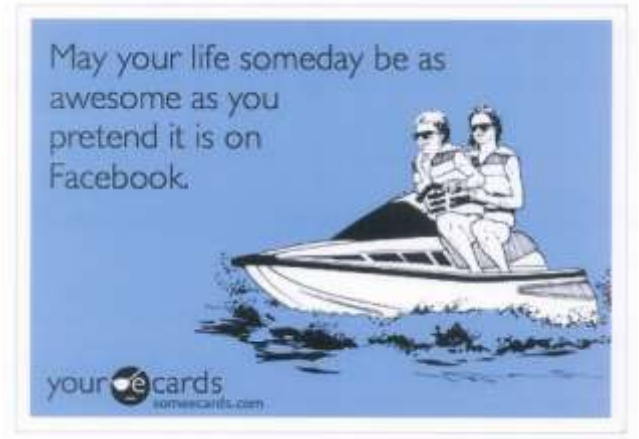
2.6


If you really loved me you'd post it on my Facebook wall
yourecards
someecards.com
WeKnowMemes

2.7


Daddy, is that your fake Facebook account you use to cheat on Mommy with?
your ecards
someecards.com

2.8


May your life someday be as awesome as you pretend it is on Facebook.
your ecards
someecards.com